

Trapdoor Spiders of the Genus *Misgolas* (Mygalomorphae: Idiopidae) from Eastern New South Wales, With Notes on Genetic Variation

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ABSTRACT. This paper reports on species of the idiopid trapdoor spider genus *Misgolas* Karsch, 1878 found in the Central Coast, Newcastle and Lower Mid-North Coast Regions of New South Wales, Australia. They comprise twenty-two new species: *M. mudfordae* n.sp., *M. thompsonae* n.sp., *M. tarnawskiae* n.sp., *M. dougweiri* n.sp., *M. maxhicksi* n.sp., *M. campbelli* n.sp., *M. yorkmainae* n.sp., *M. helensmithae* n.sp., *M. weigelorum* n.sp., *M. taiti* n.sp., *M. sydjordanae* n.sp., *M. davidwilsoni* n.sp., *M. crawfordorum* n.sp., *M. watsonorum* n.sp., *M. raveni* n.sp., *M. fredcoylei* n.sp., *M. billsheari* n.sp., *M. baehrae* n.sp., *M. macei* n.sp., *M. grayi* n.sp., *M. browningi* n.sp. and *M. linklateri* n.sp. Three species dealt with in Wishart (2006) are also included in the region covered by this work: *M. melancholicus*, *M. villosus* and *M. gracilis*. A key for males of the species within the regions is presented, as well as distribution maps and comments on taxonomy and natural history. Also included is one new species from Bondi, an eastern suburb of Sydney—*M. milledgei*.

The status of the *Misgolas* species dealt with by Wishart (2006) is clarified. An outline of the intervention of molecular work necessitated by need to match otherwise undiagnosable species with conspecific males is discussed. *Misgolas hubbardi* is placed in the synonymy of *M. rapax* as it shows no significant morphological differences in the females of the two species, nor significant molecular divergence. *Dyarcyops ionthus*, *Arbanitis montanus* and *A. chisholmi* are removed from the synonymy of *M. rapax*; and *A. fuscipes* is removed from the synonymy of *M. villosus*. *A. montanus* is given full species status. *Dyarcyops ionthus*, *A. chisholmi* and *A. fuscipes* are species incertae sedis.

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Since 1992 one of us (GW) have been accessing the Australian Museum's collection of mygalomorph spiders of the trapdoor spider genus *Misgolas* presently in excess of 2,200 specimens, for the most part collected from New South Wales. Of these the female and juvenile specimens

were generally not considered for species status because of the paucity of useful identifying characters. Of the males (about 1,300) photographic records of palp and bulb were kept to demonstrate interspecific variations in morphology of those organs. A similar exercise examining

Misgolas spider specimens held at the Queensland Museum, Brisbane, indicated a similar pattern of numerous species. From this work it seemed probable that different species of *Misgolas* trapdoor spiders found in New South Wales and Queensland would be in excess of one hundred. Presently there are 19 recognized species from New South Wales, six from Queensland, two from Tasmania and one from South Australia. This work introduces to this list a further 23 species from New South Wales.

Early in 1993 an extensive pitfall trapping collection of invertebrates throughout northern New South Wales was carried out by Dr M. Gray and Dr G. Cassis. This collection alone accounted for possibly 33 of the New South Wales *Misgolas* species estimated number. Because of the propensity for different species of male *Misgolas* spiders to wander in search of a female partner at different specific times of year (Wishart, 1993) and the geographic constraints on collecting programmes it is possible that collections made throughout a whole year and from more localities would yield many more species new to science.

This paper is the second in a geographical series detailing the distribution of spiders of the genus *Misgolas* Karsch, 1878 throughout New South Wales. The first, (Wishart, 2006) reported on species located in the Sydney Region. This work identifies species collected from the region immediately north of the Sydney Region, from the Hawkesbury River north to the 31°30'S parallel approximating Port Macquarie and the Hastings River and east of longitude 151°E to the coast (Fig. 24A). Further papers recording species from the Illawarra and South Coast, Far North Coast and the Western slopes of New South Wales are in preparation.

Three *Misgolas* species dealt with by Wishart (2006) have distributions extending from the Sydney Region into the region covered by this work (Fig. 24B). One of us (GW) would anticipate that the passing of time will show each of them to consist of a number of different species. These spiders are presently treated as: *Misgolas villosus* (Rainbow, 1914), in Wishart, 2006, p. 3, *M. gracilis* (Rainbow & Pulleine, 1918), in Wishart, 2006, p. 7 and *M. melancholicus* (Rainbow & Pulleine, 1918), in Wishart, 2006, p. 10.

Material and methods

Follows that of Wishart (2006). All specimens are deposited in the Australian Museum, Sydney. Measuring points are taken from Coyle (1971).

Whilst at rest the bulb of the male palpal organ is folded into the ventral excavation of the palpal tibia. Usually the brown sclerous convex side is uppermost against the tibia cavity and is considered here to be the dorsal surface. The weakly chitinous flange is retrolaterally situated on the basal part of the embolus. The configuration of the embolus of the male bulb (e.g., straight or bent) is described from dorsal aspect. Measurements and counts refer to the characters on the right side of the specimen and where provided data for the left side is given in brackets. Notation of spines is taken from Forster & Wilton (1968).

Terminology

Terminology follows Wishart (2006): *ALE*, anterior lateral eyes; *AM*, Australian Museum, Sydney (specimens listed under accession numbers prefixed KS are deposited in the AM); *AME*, anterior median eyes; *d*, dorsal; *DTA*, distal tibial apophysis, a small, often hooked, apical apophysis positioned retrodorsally on tibia of male palp (usually present); *GW*, G. Wishart; *pd*, prodorsal; *pl*, prolateral; *PLE*, posterior lateral eyes; *PME*, posterior median eyes; *PMS*, posterior median spinnerets; *pv*, proventral; *rd*, retrodorsal; *rl*, retrolateral; *RTA*, retroventral tibial apophysis, a prominent apophysis projecting generally forward from c. midway on tibia of male palp; *rv*, retroventral; *TEM*, tibial excavation mound, a usually pallid mound within tibial excavation, of variable prominence, prolaterally adjacent to or contiguous with RTA; *TET*, tibial excavation texture, a textured area of a series of raised transverse lines within palpal tibial excavation and which encroaches upon TEM; *v*, ventral; width/length ratio—ratio of maximum width to length of ocular area; only rarely, and then only marginally, is this greater than 2 (Main, 1985).

Key to males of species in the genus *Misgolas* from the New South Wales Central Coast south of Port Macquarie to Hawkesbury River

1	Embolus tip sinuous from dorsal aspect (Fig. 1B)	2
—	Embolus tip straight or with simple bend, not sinuous (Fig. 7B)	7
2	Embolic dorsal apophysis remote from embolus swollen tip (Fig. 1C)	3
—	Embolic apophysis absent or placed on swollen tip	5
3	Metatarsi I and II with bilateral small clusters of spines near distal edges (Fig. 1E–H)	<i>M. mudfordae</i>
—	Small clusters of spines absent from metatarsi I and II	4
4	Tarsi I and II without spines	<i>M. thompsonae</i>
—	Tarsi II (only) with retroventral row of small spines adjacent to scopula (Fig. 3G)	<i>M. tarnawskiae</i>
5	Embolic apophysis absent	<i>M. dougweiri</i>
—	Embolic apophysis on swollen tip (Fig. 5C)	6

6 Small dorsal embolic apophysis on swollen tip (Fig. 5C) *M. maxhicksi*
 — Acutely pointed prodorsal embolic apophysis near tip (Fig. 6B) *M. campbelli*

7 Tarsi I and II with bilateral rows of small spines adjacent to scopula; metatarsus I and II with bilateral small clusters of spines near distal edges (Fig. 7E–H) 8
 — Small spines adjacent to scopula on tarsi I and II and spine clusters on metatarsi I and II absent 9

8 Distal tibial apophysis massive; proximal half retrolateral tibial apophysis abruptly swollen (Fig. 7A) *M. yorkmainae*
 — Distal tibial apophysis small; retrolateral tibial apophysis digitate (Fig. 8A) *M. helensmithae*

9 Distal tibial apophysis hooked (Fig. 9A) 10
 — Distal tibial apophysis straight or absent 13

10 Cymbium dorsal surface with pallid bristles, spines absent (Fig. 9D) *M. weigelorum*
 — Cymbium dorsal surface with spines 11

11 Embolic apophysis positioned as figured (Fig. 10B) *M. taiti*
 — Embolic dorsal apophysis remote from tip or apophysis absent 12

12 Embolic dorsal apophysis present (Wishart, 2006, fig. 5B,C) *M. melancholicus*
 — Embolic apophysis absent (Wishart, 2006, fig. 1B,C) *M. villosus*

13 Embolic apophysis present or flange with one large fold 14
 — Embolic apophysis absent 18

14 Embolic flange with one large fold (Wishart, 2006, fig. 3B,C) *M. gracilis*
 — Embolic apophysis present 15

15 Embolic dorsal apophysis subdistal (Fig. 11C). Second apophysis absent *M. sydjordanae*
 — Embolic apophyses prodorsal or prolateral, not dorsal unless a second apophysis 16

16 Venter pale with brown speckles in 2–3 transverse bands (Fig. 12F) *M. davidwilsoni*
 — Venter entirely brown or black 17

17 Venter entirely black (Fig. 13D). Embolic prolateral apophysis subdistal. Small second, dorsal, embolic apophysis remote from tip (Fig. 13B,C). Retrolateral tibial apophysis digitate (Fig. 13A) *M. crawfordorum*
 — Venter entirely brown (Fig. 14D). Embolic prolateral apophysis subdistal. Second embolic apophysis absent (Fig. 14B,C). RTA swollen, not digitate (Fig. 14A) *M. watsonorum*

18 Distal tibial apophysis absent (Fig. 15A) *M. raveni*
 — Distal tibial apophysis present, not hooked 19

19 Embolic retrolateral flange distal margin sharply convexly curved folding under embolus as if twisted (Figs 16B, 17B, 18B, 19B) 20
 — Embolic retrolateral flange margin straight or gently curved (Figs 20B, 21B, 22B) 23

20 Distal tibial apophysis inclined downwards, not horizontal (Figs 16A, 17A) 21
 — Distal tibial apophysis horizontal, projecting forward (Fig. 18A) 22

21 Distal tibial apophysis small; retrolateral tibial apophysis straight (Fig. 16A) *M. fredcoylei*
 — Distal tibial apophysis large; retrolateral tibial apophysis basally bent (Fig. 17A) *M. billsheari*

22 Distal tibial apophysis digitate; retrolateral tibial apophysis digitate, (Fig. 18A) *M. baehrae*
 — Distal tibial apophysis not digitate; retrolateral tibial apophysis thickset, inclined downwards (Fig. 19A) *M. macei*

23 Retrolateral tibial apophysis digitate (Fig. 20A) *M. grayi*
 — Retrolateral tibial apophysis short, stout (Figs 21A, 22A) 24

24 Distal tibial apophysis large; cymbium dorsal spines absent (Fig. 21A) *M. browningi*
 — Distal tibial apophysis small digitate; cymbium dorsal spines present (Fig. 22A,E) *M. linklateri*

The male of *M. chisholmi* (Hickman, 1933) is unknown.

***Misgolas mudfordae* n.sp.**

Figs 1A–J, 24A.

Type material. HOLOTYPE ♂, AM KS50037, Bateau Bay, N.S.W., (33°22'S 151°29'E), 14 July 1997, Lyn Abra.

Diagnosis. In male: medium sized brown spider, carapace length c. 7, retrodorsal surface of metatarsi IV without spines (Fig. 1I); venter pale with sparse even distribution of small dark brown speckles (Fig. 1D). Bilateral clusters of spines (c. 6–13 spines per cluster) adjacent to distal edges of metatarsi I and II (Fig. 1E–H). Palpal bulb (Fig. 1B,C) embolic flange with 5 prominent folds and c. 3–4 minor folds; embolus tip sinuous from dorsal aspect (Fig. 1B), appearing swollen from lateral aspect; embolus dorsal apophysis placed midway remote from swollen tip (Fig. 1C). Conformation of palp as figured (Fig. 1A). Female unknown.

Description

Male holotype (Fig. 1A–J). **Size.** Carapace length 6.96, width 5.58. Abdomen length 7.35, width 4.51. **Colour.** In alcohol chelicerae, carapace and limbs tan, unicolourous. Faint brown smudge (Wishart, 1992) or “burnt decoration” (Raven & Wishart, 2005) on rl surface of patella I, absent from remaining limbs. Abdomen dorsum brown with c. 5 pallid transverse chevrons. Venter pallid with sparse even distribution of small dark brown speckles (Fig. 1D). **Carapace.** Edge fringed with black bristles which encroach onto posterior quarter of post foveal surface. Fine setae with golden sheen and small black bristles on caput. Row of 8 black bristles, and remains of 3 others, on caput arch; 8 bristles between PME; 13 bristles on clypeus. Weakly chitinous area absent from pleuron membrane below clypeus. Fovea width 1.30, straight with recurved edges; posterior wall centrally divided by shallow pitted intrusion. **Eyes.** Placed on mound; area immediately adjacent to eyes black. Anterior width 1.24, posterior width 1.11, length 0.67, width length ratio 1.85. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row straight in front, recurved behind. **Chelicerae.** Rastellum first row 5(7) spines; few smaller

spines retreat along anteroental edge. Fang groove with 8(10) large promarginal teeth and 9(8) small retromarginal/intermediate row teeth. Intercheliceral tumescence raised, pallid, with dense cover of dark prostrate setae. **Labium.** Bulbous, length 0.74, width 1.12. Labio-sternal suture narrow, deep, continuous. **Maxillae** c. 56(52) squat, spindle shaped anteroental cuspules, none surmounted by a fine hair. **Sternum.** Length 3.99, width 2.92. Anterior and mid pair sigilla small, round, submarginal; posterior pair larger, ovate, two diameters from margin. **Legs.** Tibia I with distal bifid apophysis; distal process with 2(2) short pointed spines, proximal process with 3(3) long pointed spines.

	palp	I	II	III	IV
femur	3.81	6.69	6.01	4.67	6.26
patella	1.78	3.32	2.89	2.33	3.01
tibia	3.56	4.97	4.18	2.76	5.59
metatarsus	—	5.03	4.45	3.86	5.59
tarsus	1.78	2.95	2.76	2.49	3.00
total	10.93	22.96	20.29	16.11	23.45

Palp (Fig. 1A). Cymbium with c. 60 long skewer-like, cylindrical, dark brown spines inclined forward c. 45° to cymbium axis, distributed on distal half of d surface. RTA not swollen; covered with d and rd short blunt-pointed spines which become pointed and continue along rv edge of tibial excavation; c. 9 longer pointed spines suspended from short, straight DTA. TEM pallid, adjacent to RTA. TET distinct on anterior and pl sides of TEM. **Bulb** (Fig. 1B,C). Embolic rl flange with 5 prominent folds and c. 3–4 minor folds; margin gently convexly curved, distal edge folds under embolus. Embolus tip sinuous from d aspect, appearing swollen from lateral aspect. Embolic d apophysis placed midway, remote from swollen tip, terminating a small ridge. **Scopula.** Complete on tarsi I and II; weak and incomplete on metatarsi I and II; absent on legs III and IV. **Trichobothria.** Palp: tarsi 6, tibia pd 5, rd 5. Leg I: tarsi 13, metatarsi 11, tibia pd 6, rd 6. Leg II: tarsi 13, metatarsi 11, tibia pd 6, rd 6. Leg III: tarsi 9, metatarsi 9, tibia pd 6, rd 6. Leg IV: tarsi 11, metatarsi 12, tibia pd 7, rd 7. **Leg spination.** Leg I (Fig. 1E,F): tarsi bilateral rows small spines adjacent to scopula pv 13, rv19; metatarsi v 010, pl distal cluster of 13, rl distal cluster of 11; tibia v 012. Leg II (Fig. 1G,H): tarsi bilateral

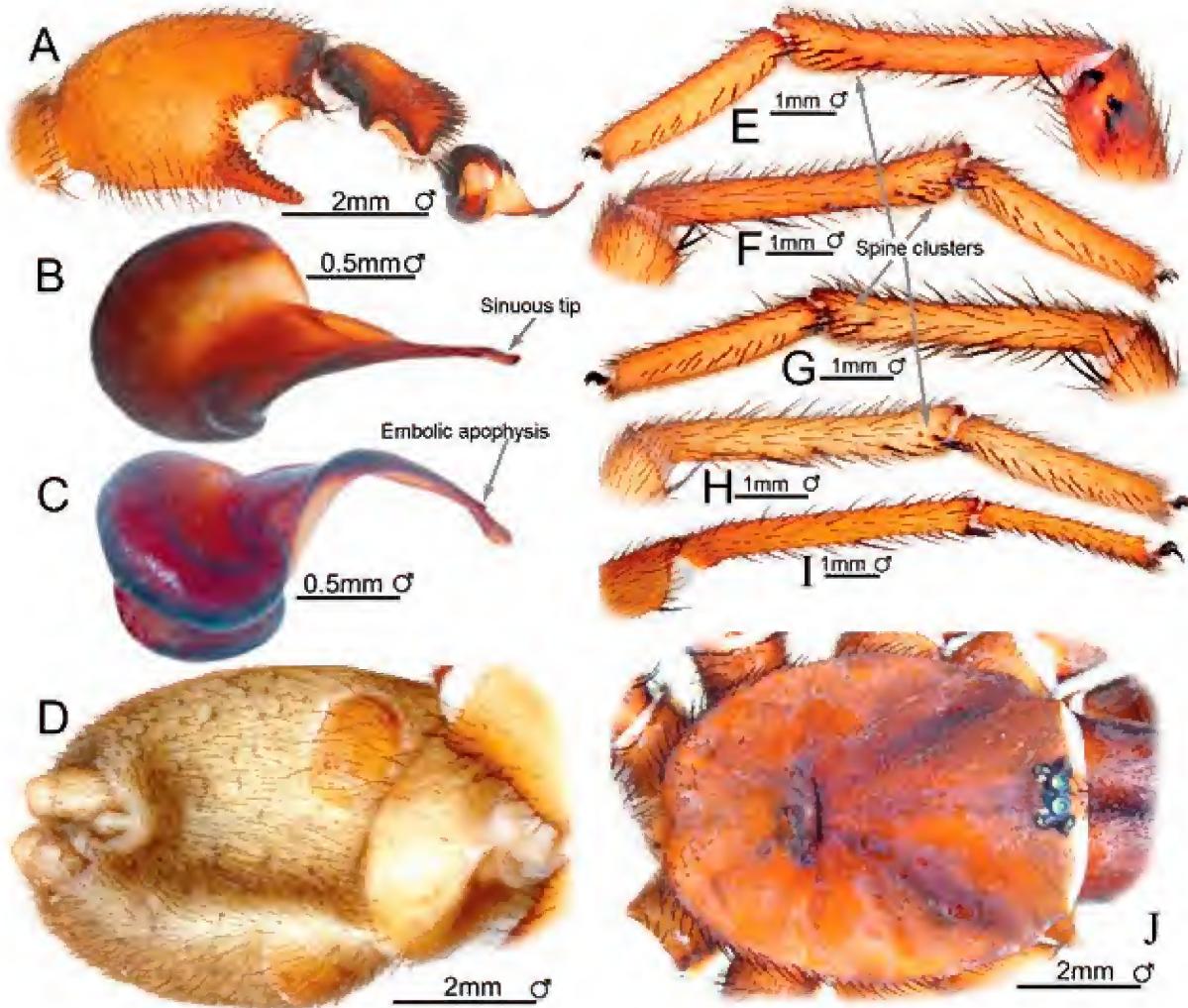


Fig. 1. *Misgolas mudfordae* n.sp. A–J ♂, holotype AM KS50037: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), venter. (E, F), right leg I: E, prolateral; F, retrolateral. (G, H), right leg II: G, prolateral; H, retrolateral. (I), right leg IV retrolateral. (J), carapace.

rows small spines adjacent to scopula pv 16, rv 25; metatarsi v 0121100, pl distal cluster of 9, rl distal cluster of 6; tibia v 0114. Leg III: tarsi v c. 40; metatarsi v c. 15, d 02220; tibia v 0113, pd 0110, rd 00110; patella pd 6. Leg IV: (Fig. 1I): tarsi v c. 44; metatarsi v c. 11; tibia v 0112. *Abdomen*. Misshapen. Dorsum with cover of long brown erect bristles, under story of fine hairs continuing over venter. Venter densely covered with small, prostrate brown bristles.

Remarks. The species may be confused with *M. thompsonae* n.sp. and *M. tarnawskiae* n.sp. but is separable from them by reference to conformation of RTA, presence of bilateral distal spine clusters on metatarsus I and II and both tarsi I and II with bilateral rows of small spines adjacent to scopula.

Etymology. The species is named in recognition of the valuable voluntary assistance given by Pam Mudford to the arachnology section of the Australian Museum, Sydney.

Distribution and natural history. (Fig. 24A) The spider is known only from the type locality, the town of Bateau Bay, N.S.W. The burrow is unknown.

Misgolas thompsonae n.sp.

Figs 2A–H, 24A.

Type material. HOLOTYPE ♂, AM KS36705, Chichester State Forest (RM), Berrico Road, about 2 km north of intersection with Kunungra Road (32°05'53"S 151°45'43"E), 1023 m, 4 Feb.–9 Apr. 1993, pit fall trap site 35BR, M. Gray, G. Cassis.

Diagnosis. In male: medium sized tan spiders, carapace length c. 6.45; retrodorsal surface of metatarsi IV without spines; venter pallid with few short dark brown maculations in 2–3 weak transverse bands (Fig. 2D). Spines absent on tarsi I and II. Bilateral small clusters of spines absent or weak on distal edges of metatarsi I and II (Figs 2E–H). Palpal bulb with retrolateral embolic flange with c. 4 prominent folds and 2–3 minor folds; embolus tip sinuous from dorsal aspect (Fig. 2B), appears swollen from lateral aspect by thin flange suspended from tip (Fig. 2C); embolic dorsal apophysis placed midway remote from tip (Fig. 2C). Conformation of palp as figured (Fig. 2A). Female not known.

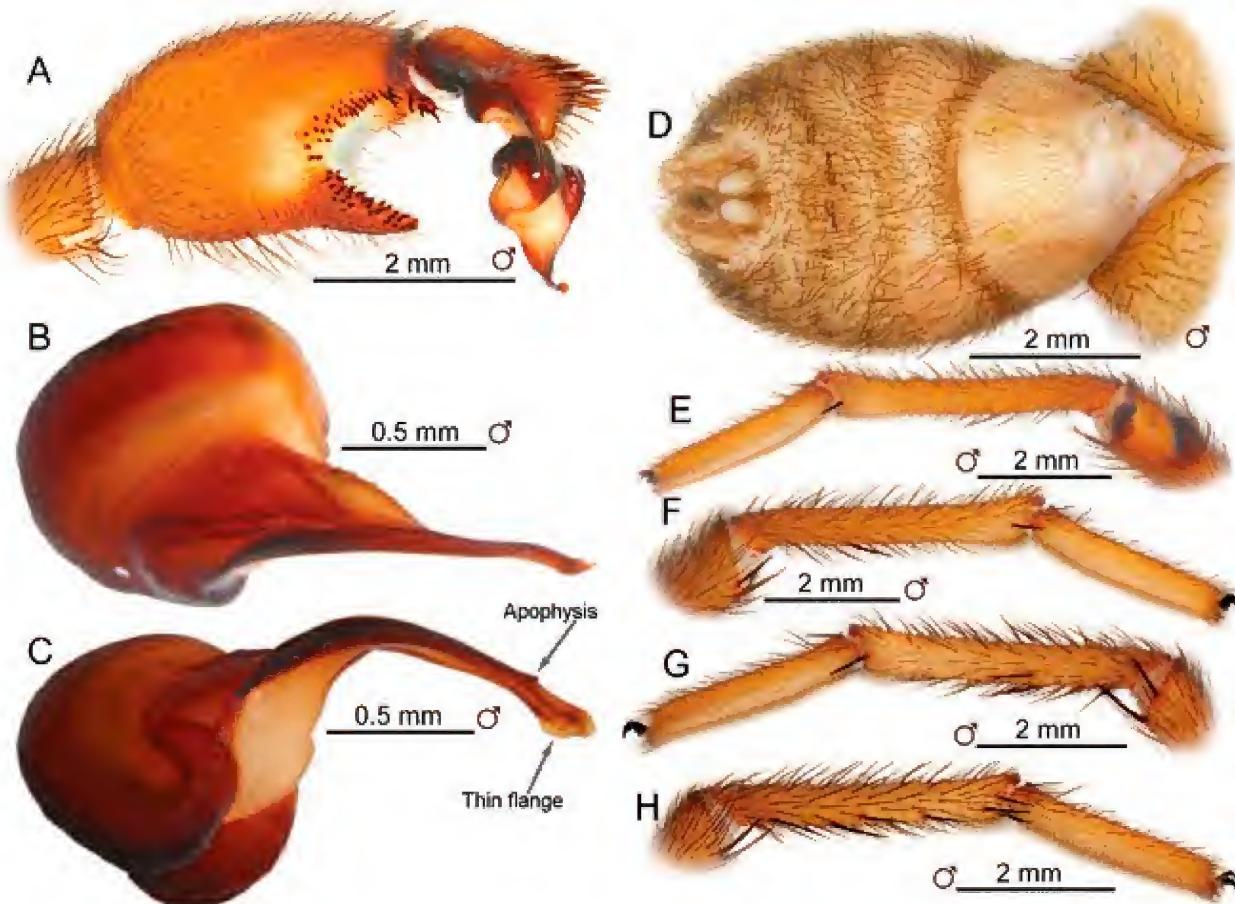


Fig. 2. *Misgolas thompsonae* n.sp. A–H ♂, holotype AM KS36705: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), venter. (E, F), right leg I: E, prolateral; F, retrolateral. (G, H), right leg II: G, prolateral; H, retrolateral.

Description

Male holotype (Fig. 2A–H). *Size*. Carapace length 6.45, width 5.16. Abdomen length 5.65, width 3.93. *Colour*. In alcohol carapace, legs, palps and chelicerae mid tan; darker brown smudges absent. Few sparse pallid hairs on caput, absent elsewhere. Abdomen dorsum pallid mottled with dark brown. Venter pallid with few small dark brown maculations mostly arranged in transverse band (Fig. 2D). *Carapace*. Edge fringed with black bristles which extend onto post foveal surface; some smaller bristles mostly associated with stria. Line of 7 median bristles anteriorly inclined on caput arch. Group of 6 bristles between PME; group of 7 bristles on clypeus. Area extending onto pleuron below clypeus narrow, weakly chitinous, with one seta. Fovea width 1.31, straight, posterior wall centrally divided by small pitted intrusion. *Eyes*. Raised on mound. Areas adjacent to eyes, anterior to ALE excepted, black. Anterior width 1.12, posterior width 1.02, length 0.64, width/length ratio 1.75. Line joining posterior edge of ALE transects anterior quarter of AME. Posterior row straight in front, recurved behind. *Chelicerae*. Rastellum first row 6(6) strong spines; many smaller spines behind retreating back along pd chelicerae edge. Intercheliceral tumescence shapeless, raised on low pallid mound; with cover of prostrate brown setae. Fang groove with 10(9) promarginal teeth and 10(7) smaller retromarginal/intermediate row teeth. *Labium*. Bulbous, length 0.69, width 1.08. Labio-sternal suture broad, narrowed medially, continuous. *Maxillae* c. 50(50) short,

squat, anteroental cuspules, many with terminal fine hair. *Sternum*. Length 3.43, width 2.46. Sigilla small round; first pair submarginal, mid pair separated from margin by c. 1.5 times their own diameter, third pair by twice their diameter. *Legs*. Left leg I missing. Tibia I with distal bifid apophysis; distal process with 2 short spines with blunt points, proximal process with 2 long pointed spines.

	palp	I	II	III	IV
femur	3.56	6.20	5.64	4.42	6.20
patella	1.72	2.82	2.70	2.09	2.82
tibia	3.44	4.42	4.05	2.64	5.28
metatarsus	—	4.61	3.99	3.43	5.34
tarsus	1.72	2.70	2.52	2.21	2.82
total	10.44	20.75	18.90	14.79	22.46

Palp (Fig. 2A). Cymbium with c. 50 long skewer-like pointed spines, anteriorly inclined c. 45° to cymbium axis, distributed over distal third of d surface and distal two-thirds of pd surface. RTA broad without swellings, d and rd surface covered with 35 large squat pointed spines; c. 36 similar spines reduced in size continue on rv edge of tibial excavation; c. 12 long spines suspended from straight DTA. TEM large pallid, adjacent to RTA. TET present on pl face of TEM and v surface of tibial excavation. *Bulb*. Embolic rl flange with 4 prominent and c. 3 minor folds; margin gently convexly curved, distal edge folds under embolus. Embolus tip sinuous from d aspect (Fig. 2B), appears swollen from lateral aspect by thin v flange suspended from tip (Fig. 2C).

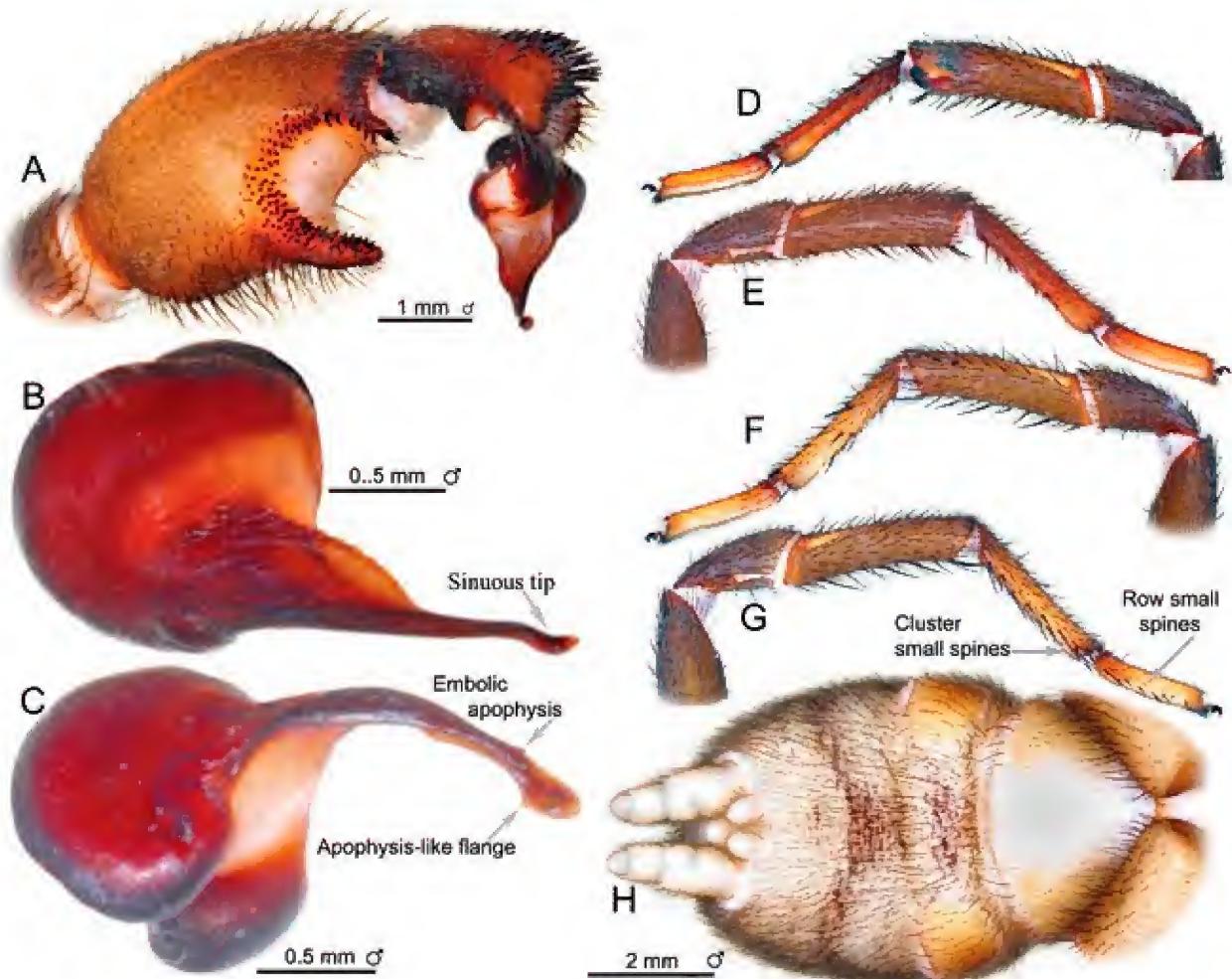


Fig. 3. *Misgolas tarnawskiae* n.sp. A–H ♂, holotype AM KS92879: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D,E), right leg I: D, prolateral; E, retrolateral. (F,G), right leg II: F, prolateral; G, retrolateral. (H), venter.

Embolus apophysis placed c. midway, remote from tip, terminating small ridge. *Scopula*. Dense and complete on tarsi I and II; weak and incomplete on metatarsi I and II and tarsi III; absent on metatarsi III and leg IV. *Trichobothria*. Palp: tarsi 9, tibia pd 5, rd 5; Leg I: Tarsi 11, metatarsi 14, tibia pd 6, rd 6; Leg II: tarsi 10, metatarsi 11, tibia pd 5, rd 5; Leg III: tarsi 9, metatarsi 9, tibia pd 5, rd 6; Leg IV: tarsi 10, metatarsi 13, tibia pd 7, rd 6. *Leg spination*. Leg I (Fig. 2E,F): metatarsi v 0010010, pv 01; tibia v 0112. Leg II (Fig. 2G,H): metatarsi pv 0101(0101), rv 0111112(0011111); tibia v 0113. Leg III: tarsi v 12 scattered; metatarsi v 9 scattered, d 002020; tibia v 0113, pl 0110, rl 011; patella pd 7. Leg IV: tarsi v 16 scattered; metatarsi v 10 scattered; tibia v 8 scattered. *Abdomen*. Dorsum with cover of erect long brown bristles. Sides flanked with softer prostrate hairs; prostrate bristles on venter with understory of fine setae.

Remarks. The species may be confused with *M. mudfordae* n.sp. and *M. tarnawskiae* n.sp. but is separable from them by reference to conformation of RTA, absence of distal spine clusters on metatarsi I and spines absent on tarsi I and II.

Etymology. The species is named in recognition of Judy Thompson, one time technical officer in the arachnology section of the Australian Museum, Sydney.

Distribution and natural history. (Fig. 24A) This species is known only from Cape Hawke near Forster, NSW. The burrow is unknown.

Misgolas tarnawskiae n.sp.

Figs 3A–H, 24A

Type material. HOLOTYPE ♂, AM KS92879, 21 Carmona Drive, Cape Hawke, nr Forster (32°12'59"S 152°33'02"E), 1 Mar. 2006, Ken Watson, recovered from in-ground pool. PARATYPE ♂: AM KS92878, 20 Mar. 2006, other details as for holotype AM KS92879.

Diagnosis. In male: large brown spider, carapace length c. 8–9, retrodorsal surface metatarsi IV without spines; venter pattern as figured (Fig. 3H), proximal limb segments inclusive of patella dark brown; remaining limb segments progressively lighter (Fig. 3D–G). Row of small retroventral spines adjacent to scopula of tarsi II (Fig. 3G), proventral and retroventral rows absent on tarsi I and proventral row absent on tarsi II (Fig. 3D–F). Cluster of c. 5–8 retrolateral spines adjacent to distal edge of metatarsi II (Fig. 3G), nil or few spines near distal prolateral edge metatarsi II and distal lateral edges metatarsi I (Fig. 3D–F). Palpal bulb

(Fig. 3B,C) embolic flange with 4 prominent folds and c. 3–5 minor folds; embolus tip sinuous from dorsal aspect, appears swollen from lateral aspect by small thin ventral apophysis-like flange suspended from proximal edge of tip swelling (Fig. 3C); embolic dorsal apophysis placed remote from swollen tip (Fig. 3C). Conformation of palp as figured (Fig. 3A). Female not known.

Description

Male holotype (Fig. 3A–H). *Size*. Carapace length 8.43, width 6.66. Abdomen length 7.94, width 5.39. *Colour*. In alcohol chelicerae, carapace, dorsal abdomen and proximal limb segments inclusive of patella dark brown. Remaining limb segments progressively lighter; dark brown smudges absent. Abdomen dorsum with 6 pallid transverse chevrons. Venter pallid with dark brown maculations most dense as central transverse band and median band extending from epigastric furrow to the transverse band. *Carapace*. Edge fringed with black bristles that encroach onto posterior half of post foveal surface. Setae with gold sheen sparse, most concentrated along stria anterior borders. Row of 12 seta/bristle sockets on caput arch; 11 dark brown bristles between PME; 12 bristles and c. 10 weak pallid bristles on clypeus. Setae absent on weakly chitinous area extending onto pleuron membrane below clypeus. Fovea width 1.79, straight with recurved edges; posterior wall centrally divided by minute pitted intrusion. *Eyes*. Placed on mound; area immediately adjacent to eyes black. Anterior width 1.36, posterior width 1.33, length 0.79, width/length ratio 1.72. Line joining posterior edges of ALE bisects AME. Posterior row slightly recurved in front, recurved behind. *Chelicerae*. Rastellum first row 7(6) spines, second row 6(7). Fang groove with 9(9) large promarginal teeth and 19(19) small retromarginal/intermediate row teeth. Intercheliceral tumescence raised, pallid with cover of prostrate dark setae. *Labium*. Bulbous, length 0.92, width 1.36. Labio-sternal suture broad, continuous. *Maxillae* c. 44(46) short, spindle shaped anteroventral cuspules, one surmounted by a fine hair. *Sternum*. Length 4.51, width 3.36. Anterior and mid pair sigilla small, round, c. their own diameter from margin; posterior pair larger, ovate, c. their own length from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short pointed spines, proximal process with 3(3) longer pointed spines.

	palp	I	II	III	IV
femur	4.48	7.31	6.63	5.53	7.25
patella	2.15	3.87	3.62	2.89	3.75
tibia	4.05	4.97	4.54	3.13	6.20
metatarsus	—	5.10	4.67	4.18	6.08
tarsus	2.03	2.89	2.76	2.58	3.13
total	12.71	24.14	22.22	18.31	26.41

Palp (Fig. 3A). Cymbium with c. 46 long, skewer-like, dark brown spines inclined forward c. 45° to cymbium axis, distributed on distal half of d surface. RTA digitate, not swollen; covered with d and rd short pointed spines which continue uninterrupted along rv edge of tibial excavation; c. 13 longer curved attenuate spines suspended from straight DTA. TEM pallid, adjacent to RTA. TET distinct on anterior and pl sides of TEM. *Bulb* (Fig. 3B,C). Embolic rl flange with 4 long folds and c. 3–5 minor folds; margin gently convexly curved. Embolus tip sinuous from d aspect, appears swollen

from lateral aspect by small, thin apophysis-like flange is suspended from proximal edge of tip swelling; minute embolic d apophysis placed remote from swollen tip.

Scopula. Complete on tarsi I and II; incomplete on metatarsi I, weak and incomplete on metatarsi II; absent on legs III and IV. *Trichobothria*. Palp: tarsi 8, tibia pd 6, rd 6. Leg I: tarsi 12, metatarsi 14, tibia pd 7, rd 7. Leg II: tarsi 11, metatarsi 13, tibia pd 7, rd 6. Leg III: tarsi 11, metatarsi 9, tibia pd 6, rd 6. Leg IV: tarsi 11, metatarsi 12, tibia pd 7, rd 7. *Leg spination*. Leg I (Fig. 3D,E): metatarsi v 02, rv 111101, pl 010; tibia v 010112. Leg II (Fig. 3F,G): tarsi rv row of 11 small spines adjacent to scopula; metatarsi v 01111, pv 011, rv 011111, rl distal cluster of 8, pd 010; tibia v 011112, pl 01, pd 0010. Leg III: tarsi v c. 56; metatarsi v c. 17, pd 012220, rd 000111; tibia v 0113, pd 0110, rd 00110; patella pd 9. Leg IV: tarsi v c. 42; metatarsi v 17; tibia v 021102. *Abdomen*. Dorsum with cover of long brown erect bristles; understory of fine hairs which continue bilaterally extending over venter; venter densely covered with prostrate brown bristles.

Remarks. The species may be confused with *M. mudfordae* n.sp. and *M. thompsonae* n.sp. but is separable from them by reference to conformation of RTA, absence of bilateral spine clusters on metatarsus I and spines absent on tarsi I.

Etymology. The species is named in recognition of Jaynia Tarnawski, technical officer, Australian Museum, Sydney.

Distribution and natural history. (Fig. 24A) This species is known only from the type locality, Cape Hawke near Forster, N.S.W. and is sympatric with *M. watsonorum* n.sp. The burrow is unknown.

Misgolas dougweiri n.sp.

Figs 4A–H, 24A

Type material. HOLOTYPE M, AM KS50006, Killarney Vale (33°22'S 151°28'E), 25 May 1997, Lyn Abra. PARATYPES ♂♂: AM KS44411 (damaged condition), Dora Creek nr Gosford (33°05'S 151°30'E), 25 May 1996, Lyn Abra; AM KS49383, Mannerling Park (33°12'S 151°34'E), 24 Apr. 1997, Lyn Abra; AM KS69961, Gosford area (33°26'S 151°20'E), 25 July 1999, Lyn Abra.

Diagnosis. In male: medium sized dark brown spiders, carapace length c. 6.0–7.4; retrodorsal surface of metatarsi IV without spines; venter with dense cover small dark brown maculations (Fig. 4H). Both tarsi I and II with bilateral rows of small spines adjacent to scopula (Fig. 4D–G). Metatarsi I and II with bilateral small clusters of spines near distal edges. Palpal bulb with retrolateral embolic flange with 5 prominent and 2–3 minor folds; embolus tip sinuous from dorsal aspect (Fig. 4B), appears swollen from lateral aspect by thin ventral flange suspended from tip (Fig. 4C); embolic dorsal apophysis absent. Conformation of palp as figured (Fig. 4A). Female not known.

Description

Male holotype (Fig. 4A–H). *Size*. Carapace length 7.18, width 5.59. Abdomen length 8.53, width 5.03. *Colour*. In

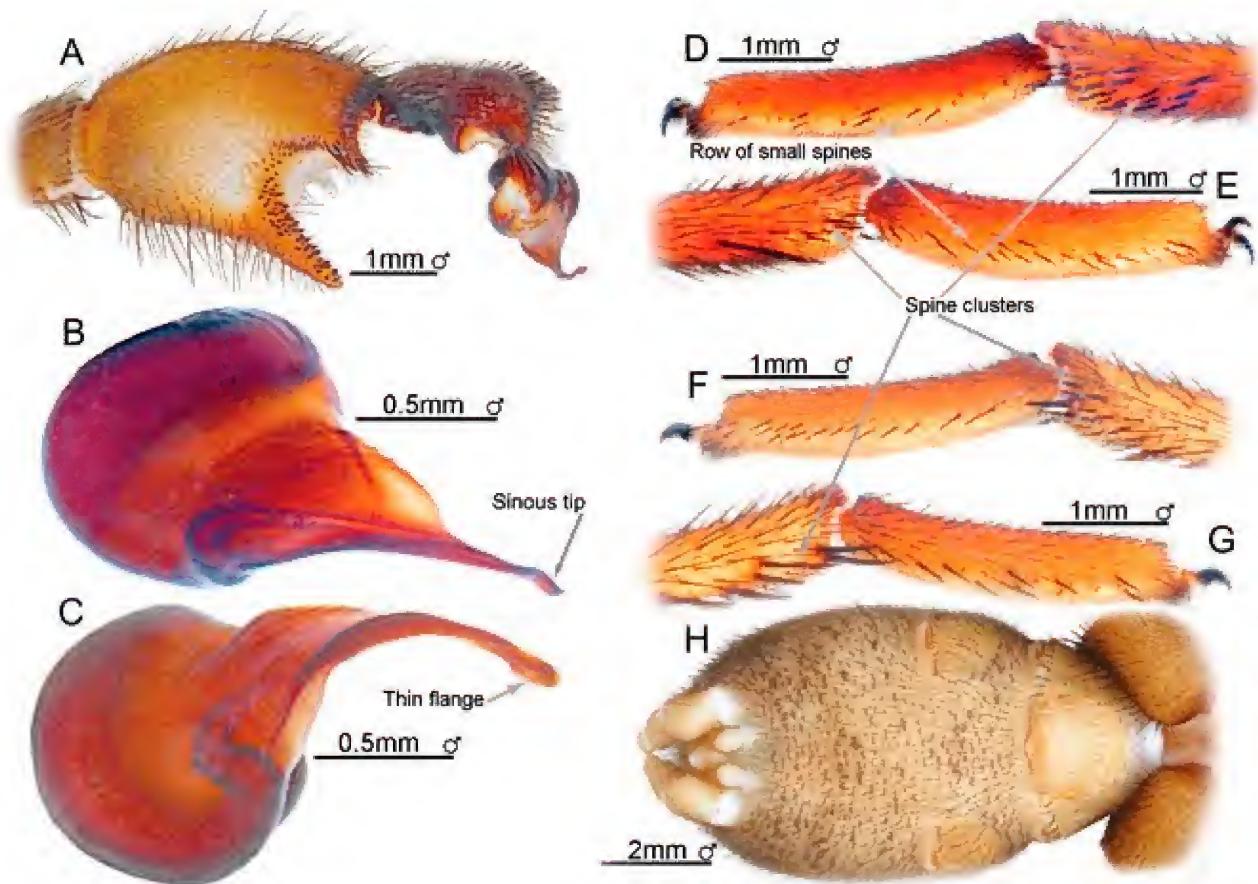


Fig. 4. *Misgolas dougweiri* n.sp. A–H ♂, holotype AM KS50006: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D,E), right tarsus/metatarsus joint I: D, prolateral; E, retrolateral. (F,G), right tarsus/metatarsus joint II: F, prolateral; G, retrolateral. (H), venter.

alcohol carapace, proximal limb segments and chelicerae dark brown. Some pallid hairs on carapace, absent on limbs. Patella and tibia of anterior limbs with weak darker smudges. Abdomen dorsum dark brown with six pale transverse chevrons. Venter pale, covered with many small brown maculations (Fig. 4H). *Carapace*. Edge fringed with black bristles that encroach onto posterior third of post foveal surface. Line of c. 8 (some rubbed off) median bristles on caput arch. Group of 8 bristles on clypeus; group of smaller setae on weakly chitinous area extending onto pleuron membrane below clypeus. Fovea width 1.46, straight with recurved edges, posterior wall centrally divided by large pitted intrusion. *Eyes*. Raised on small mound, area immediately adjacent to eyes black; anterior width 1.15, posterior width 1.10, length 0.73, width/length ratio 1.58. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae*. Rastellum row of 5(8) spines in front, 4(2) behind. Intercheliceral tumescence elongate each bearing a dark basal spot. Fang groove with 9(9) promarginal teeth & 9(11) smaller retromarginal/intermediate row teeth. *Labium*. Bulbous, length 0.67, width 1.10. Labio-sternal suture broad narrowing centrally. *Maxillae* c. 51(51) short blunt anteroental cuspules. *Sternum*. Length 3.92, width 2.94. Sigilla small, distinct, anterior pair submarginal, mid pair one diameter from margin, posterior pair largest and two diameters from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short pointed spines, proximal process with 1 short and 1 long compact spines and 1 long spine rising from process base.

	palp	I	II	III	IV
femur	3.56	6.26	5.59	4.48	6.32
patella	1.72	3.19	2.94	2.27	3.13
tibia	3.31	4.36	3.87	2.58	5.59
metatarsus	—	4.42	4.05	3.68	5.40
tarsus	1.78	2.82	2.58	2.33	3.19
total	10.37	21.05	19.03	15.34	23.63

Palp (Fig. 4A). Cymbium with c. 63 long narrow, stick-like, slightly anteriorly inclined spines distributed over distal half of d surface. RTA digitate, not swollen basally, inclined downwards, covered with squat pointed d spines which continue along rv edge of tibial excavation. DTA long, straight, inclined downwards almost parallel to RTA, suspending c. 13 long v spines. TEM prominent, adjacent to RTA; TET barely visible on anterior side of TEM. *Bulb*. Embolic rl flange with 5 long and 2 minor folds, margin gently convexly curved. Embolus tip sinuous from dorsal aspect (Fig. 4B); appears swollen from lateral aspect by thin v flange suspended from tip (Fig. 4C). Embolic apophysis absent. *Scopula*. Dense and complete on tarsi I, II and on distal eighth of metatarsi I; distal fragment on metatarsi II; absent on legs III and IV. *Trichobothria*. Palp: tarsi 9, tibia pd 5, rd 5. Leg I: tarsi 15, metatarsi 13, tibia pd 4, rd 4. Leg II: tarsi 14, metatarsi 13, tibia pd 7, rd 5. Leg III: tarsi 10, metatarsi 9, tibia pd 6, rd 7. Leg IV: tarsi 11, metatarsi 15, tibia pd 7, rd 6. *Leg spination*. Leg I (Fig. 4D,E): tarsi bilaterial rows small spines adjacent to scopula pv 7, rv 22; metatarsi pv 022 cluster of 7, rv 011 cluster of 21; tibia v

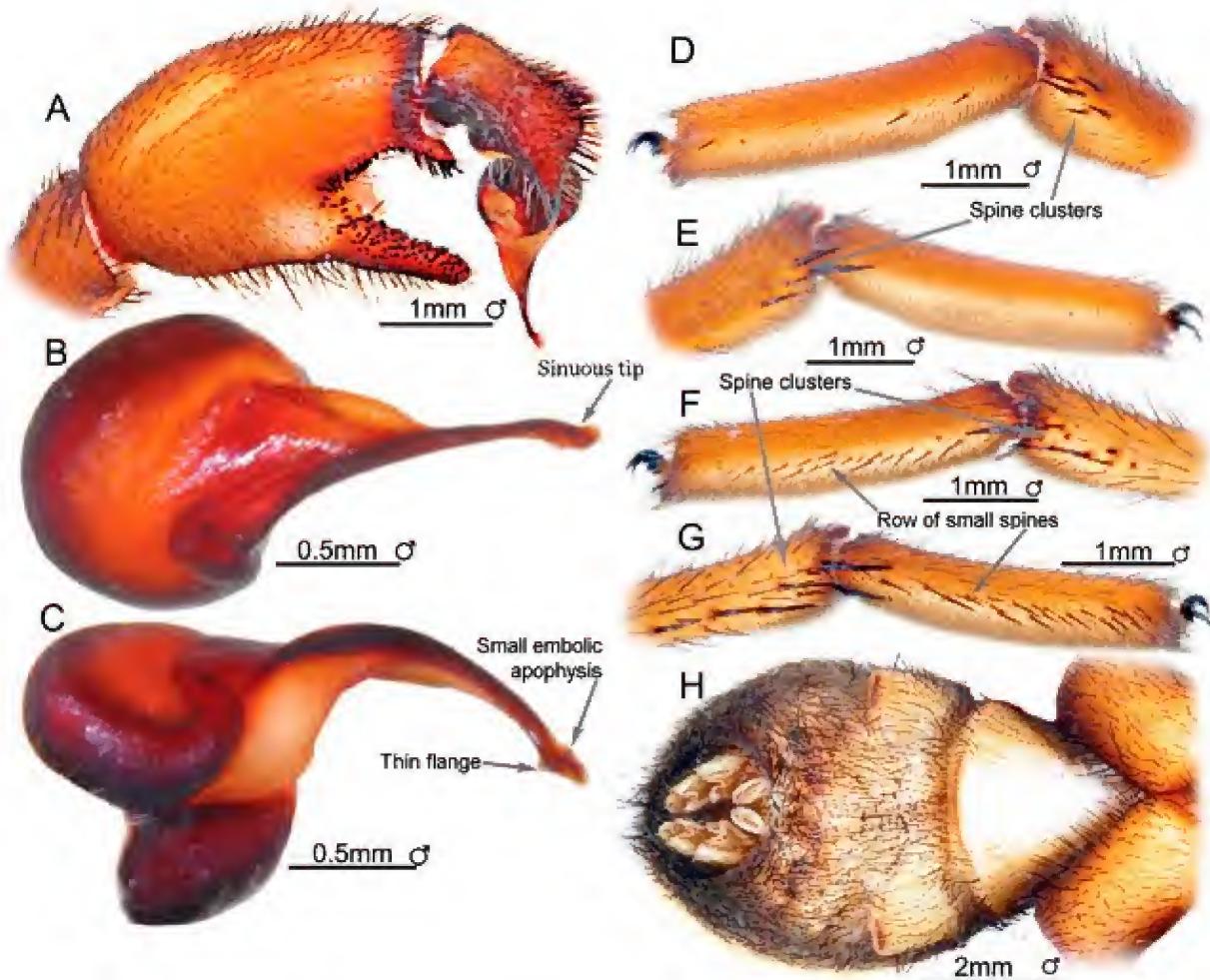


Fig. 5. *Misgolas maxhicksi* n.sp. A–G ♂, holotype AM KS38635: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D,E), right tarsus/metatarsus joint I: D, prolateral; E, retrolateral. (F,G), right tarsus/metatarsus joint II: F, prolateral; G, retrolateral. (H) ♂, paratype AM KS48650, venter.

0012, pl 00010. Leg II (Fig. 4F,G): tarsi bilateral row small spines adjacent to scopula pv 20, rv 12; metatarsi pv 010 cluster of 9, rv 01111 cluster of 5. Leg III: tarsi v 43, metatarsi v 11, d 002120; tibia v 0112, pl 01010, rl 011; patella pd 8. Leg IV: tarsi v 41; metatarsi v 11; tibia v 022. *Abdomen*. Dorsum with cover of long brown hairs increasing in number, becoming finer laterally and covering venter. Dorsum hairs with underlying fine hairs.

Remarks. The species may be confused with other species included in this work that also have the male bulb with a sinuous tip but is separable from them by reference to the absence of an embolic apophysis.

Etymology. The species is named in recognition of a good friend of GW, Douglas Weir, late of Gerringong, NSW.

Distribution and natural history. (Fig. 24A) This species is known only from the type localities, all near Gosford, N.S.W. The burrow is unknown.

Misgolas maxhicksi n.sp.

Figs 5A–H, 24A

Type material. HOLOTYPE M, AM KS38635, Barrington Tops SF, 1.3 km along Bungaree Trail from Barrington Tops Forest Rd (31°56'44"S 151°21'09"E), 1180 m, 4 Feb.–9 Apr. 1993 pitfall trap site 62BR, M. Gray, G. Cassis. PARATYPE ♂: AM KS48650, details same as holotype.

Other material examined ♂♂, AM KS36720, Chichester State Forest (26/46A), junction of Mt. Allyn Rd. & Allyn River Forest Rd (32°08'S 151°28'E), 355 m, 4 Feb.–9 Apr. 1993, pit fall trap site 36CG, M. Gray, G. Cassis. AM KS36717 (3 specimens), Chichester State Forest (26), Allyn River Forest Rd, 1.1 km north of Mt. Allyn Rd (32°08'S 151°28'E), 378 m, 4 Feb.–9 Apr. 1993, pit fall trap site 38CM, M. Gray, G. Cassis; AM KS86220, details same as KS36717; AM KS86221, details same as KS36717; AM KS38608, Chichester State Forest (16A), Bungari Rd, 1 km from Mt Allyn Rd (32°08'S 151°26'E), 940 m, 4 Feb.–9 Apr. 1993, pit fall trap site 36BM, M. Gray, G. Cassis; AM KS86212, details same as KS38608.

Diagnosis. In male: medium sized dark brown spiders, carapace length c. 6.0–7.94; retrodorsal surface of metatarsi IV without spines; venter with dense pattern of brown maculations as figured (Fig. 5H). Tarsi II with bilateral rows of small spines adjacent to scopula margins (Fig. 5F,G), few if any on tarsi I (Fig. 5D,E). Metatarsi I and II with bilateral small clusters of spines near distal edges (Fig. 5D–G). Palpal bulb with retrolateral embolic flange with c. 8 fine folds; embolus tip sinuous from dorsal aspect (Fig. 5B), appears swollen from lateral aspect by thin ventral flange suspended from tip (Fig. 5C); embolus with small subdistal dorsal apophysis (Fig. 5C). Conformation of palp as figured (Fig. 5A). Female not known.

Description

Male holotype (Fig. 5A–H). *Size.* Carapace length 7.94, width 6.27. Abdomen length 7.06, width 4.41. *Colour.* In alcohol, carapace, legs, palps, chelicerae dark brown. Anterior limbs with some indistinct darker smudges most prominent on patella rl surface. Golden hairs on carapace, absent on proximal limb segments. Abdomen dorsum dark brownish black with five pale narrow transverse chevrons. Venter appearing dark, densely covered with small dark maculations (Fig. 5H). *Carapace.* Edge fringed with black bristles that encroach onto posterior third of post foveal surface. Line of 7 median bristles anteriorly inclined on caput arch. Group of 9 bristles between PME; 8 bristles on clypeus. Weakly chitinous area extending onto pleuron below clypeus absent (Wishart, 2006). Fovea width 1.47, straight, posterior wall centrally divided by small pitted intrusion. *Eyes.* Raised on mound. Area immediately adjacent to eyes black; anterior width 1.26, posterior width 1.18, length 0.67, width/length ratio 1.88. Line joining posterior edge of ALE transects anterior third of AME. Posterior row procurved in front, recurved behind. *Chelicerae.* Rastellum row of 6(8) strong spines; c. 6(5) smaller spines retreating along pd chelicerae edges. Intercheliceral tumescence small indistinct. Fang groove with 13(15) promarginal teeth and 16(16) smaller retromarginal/intermediate row teeth. *Labium.* Bulbous, length 0.82, width 1.28. Labio-sternal suture broad, undivided. *Maxillae* c. 52(45) squat blunt anteroventral cuspules. *Sternum.* Length 4.21, width 3.33. Sigilla all round; posterior pair largest; their own diameter from margin. *Legs.* Tibia I with distal bifid apophysis; distal process with 2(2), proximal process with 3(4), short pointed spines.

	palp	I	II	III	IV
femur	4.12	7.06	6.57	5.10	7.35
patella	2.13	3.72	3.43	2.70	3.52
tibia	4.07	4.61	4.31	2.99	6.08
metatarsus	—	5.49	4.90	4.02	6.17
tarsus	1.90	3.23	2.94	2.69	3.23
total	12.22	24.11	22.15	17.50	26.35

Palp (Fig. 5A). Cymbium with c. 70 long, narrow, skewer-like, anteriorly inclined spines distributed over distal two thirds of d surface. RTA digitate, not swollen basally, inclined downwards, covered with squat, pointed, d spines which continue along rv edge of tibial excavation; DTA long, straight, inclined downwards, almost parallel to RTA, suspending c. 12 longer v spines. TEM pallid, adjacent to RTA; TET indistinct, barely visible, adjacent to pl base of

TEM. *Bulb.* Embolic rl flange with c. 8 fine folds, margin gently convexly curved. Embolus tip sinuous from dorsal aspect (Fig. 5B), appears swollen from lateral aspect by thin flange suspended from tip (Fig. 5C). Embolus with subdistal d apophysis placed above swollen tip. *Scopula.* Dense and complete on tarsi I and II; dense and incomplete on metatarsi I; less dense and incomplete on metatarsi II; absent on legs III and IV. *Trichobothria.* Palp: tarsi 9, tibia pd 7, rd 6. Leg I: tarsi 13, metatarsi 15, tibia pd 7, rd 7. Leg II: tarsi 12, metatarsi 12, tibia pd 5, rd 5. Leg III: tarsi 10, metatarsi 9, tibia pd 6, rd 6. Leg IV: tarsi 12, metatarsi 15, tibia pd 7, rd 7. *Leg spination.* Leg I (Fig. 5D,E): tarsi pv 011000110; metatarsi v 010, pl 8 in distal cluster, rl 6 in distal cluster; tibia v 0112. Leg II (Fig. 5F,G): tarsi bilateral rows small spines adjacent to scopula pv 15, rv 24; metatarsi pv 0010cluster of 15, rv 0011cluster of 8; tibia v 01112. Leg III: tarsi v 33 on distal two-thirds; metatarsi v 10, d 01222; tibia pl 01010, rl 010111, v 02; patella pd 7 + 4 on distal edge. Leg IV: tarsi v 33 spread over surface; metatarsus v 11, tibia v 02. *Abdomen.* Distorted, possibly discoloured due to preservation effects. Dorsum with sparse cover of short brown hairs increasing in number and length laterally. Venter with dense cover of long brown hairs.

Remarks. The species may be confused with other species included in this work that also have the male bulb with a sinuous tip but is separable from them by reference to the position of the small d embolic apophysis.

Etymology. The species is named in recognition of a good friend of GW, Max Hicks, late of Lennox Head, NSW.

Distribution and natural history. (Fig. 24A) This species is known only from the type locality, Barrington Tops State Forest. The burrow is unknown.

Misgolas campbelli n.sp.

Figs 6A–I, 24A

Type material. HOLOTYPE ♂, AM KS44302, "Tuglo", 48 km north of Singleton, N.S.W. (32°15'S 151°20'E), Jan. 1977, collector not known. PARATYPE ♂, AM KS36599, other details as for holotype.

Diagnosis. In male: medium sized brown spider, carapace length c. 7–7.4, retrodorsal surface of metatarsus IV without spines; venter pale with even distribution of small dark brown maculations as figured (Fig. 6D). Small spines in bilateral rows adjacent to scopula of tarsi I, if present, weak and to a maximum of 6 per row (Fig. 6E,F); tarsi II with bilateral rows small spines adjacent to scopula margins (Fig. 6G,H). Bilateral clusters of spines (2–17 spines per cluster) adjacent to distal edges of metatarsi I and II (Fig. 6E–H). Palpal bulb (Fig. 6B,C) with retrolateral embolic flange with 4 prominent folds and c. 3 minor folds; embolus tip sinuous from dorsal aspect, appears swollen from lateral aspect by small thin ventral flange suspended from tip. Embolic apophysis prodorsal, acute angled, placed near tip above small flange, best observed from dorsal aspect (Fig. 6B). Conformation of palp as figured (Fig. 6A). Female unknown.

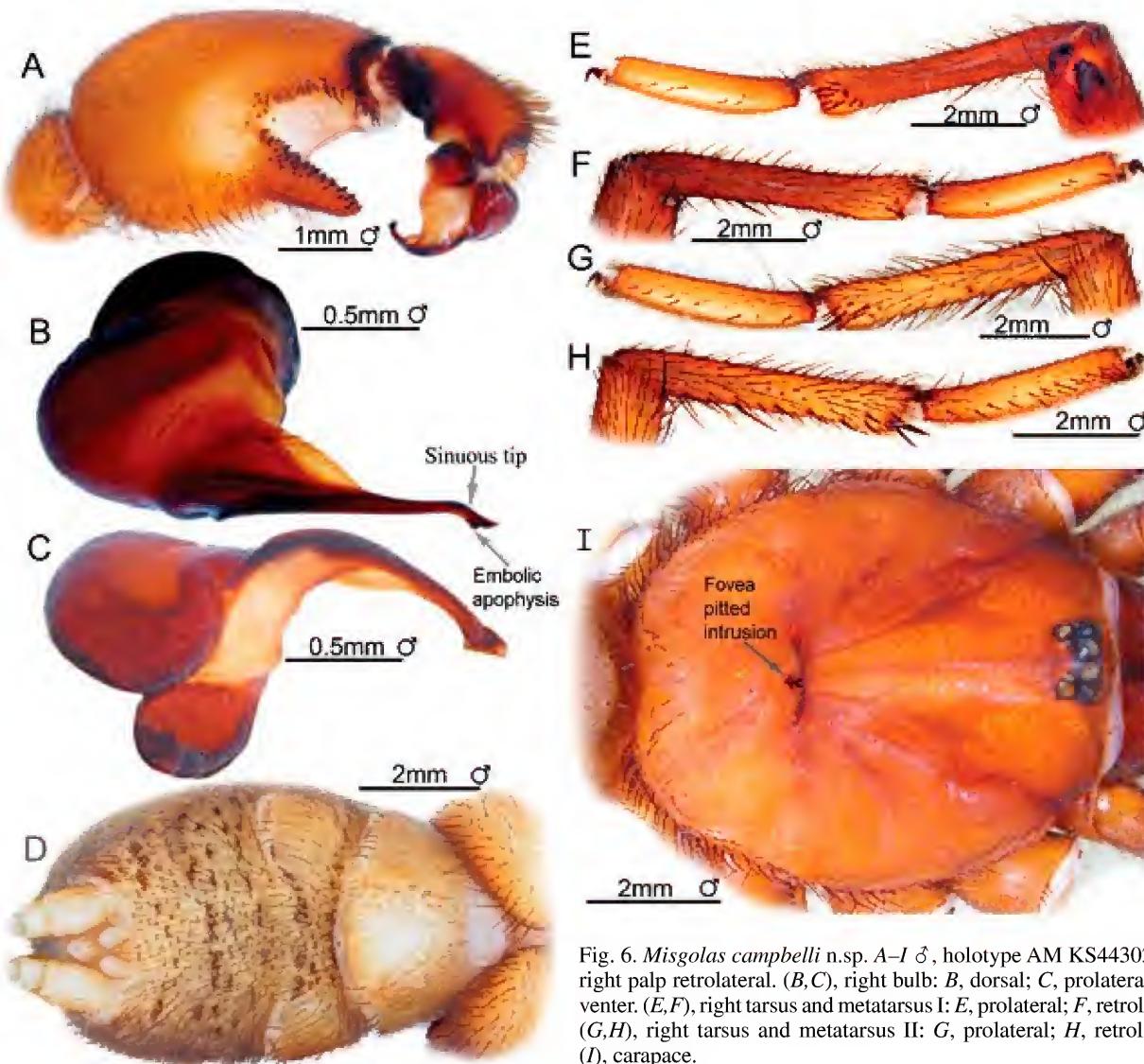


Fig. 6. *Misgolas campbelli* n.sp. A–I ♂, holotype AM KS44302. (A), right palp retro-lateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), venter. (E, F), right tarsus and metatarsus I: E, prolateral; F, retro-lateral. (G, H), right tarsus and metatarsus II: G, prolateral; H, retro-lateral. (I), carapace.

Description

Male holotype (Fig. 6A–J). *Size.* Carapace length 7.35, width 6.37. Abdomen length 7.45, width 4.61. *Colour.* In alcohol chelicerae, carapace and limbs tan, unicolourous. Weak brown bilateral smudges on patella I and II. Abdomen dorsum brown with c. 6 pallid transverse chevrons. Venter pallid with even distribution of small dark brown maculations (Fig. 6D). *Carapace.* Edge fringed with black bristles which encroach onto posterior quarter of post foveal surface. Evidence of lost setae remains on caput arch and interstrial ridges. Fine setae with golden sheen absent. Remains of 3 bristles between PME; 7 bristles on clypeus. Weakly chitinous area extending onto pleuron membrane below clypeus with 4 pallid weak bristles. Fovea width 1.46, straight; posterior wall centrally divided by large deep pitted intrusion (Fig. 6I). *Eyes.* Placed on mound; area immediately adjacent to eyes black. Anterior width 1.20, posterior width 1.12, length 0.74, width/length ratio 1.62. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae.* Rastellum first row of 7(7) spines, c. 7(7) smaller spines scattered behind. Intercheliceral tumescence and fang groove detail not visible without damaging

chelicerae. *Labium.* Bulbous, length 0.72, width 1.10. Labio-sternal suture narrow, continuous. *Maxillae* c. 35(37) small, pointed, fusiform, antero-oral cuspules, none surmounted by a fine hair. *Sternum.* Length 3.99, width 3.01. Sigilla round, first and second pair submarginal, third pair larger and 1.5 diameters from margin. *Legs.* Right leg IV missing. Tibia I with distal bifid apophysis; distal process with 2(2) short blunt spines, proximal process with 4(3) short mucronate spines and 1(1) long attenuate basal spine.

	palp	I	II	III	IV
femur	3.99	6.81	6.14	4.61	(6.47)
patella	2.09	3.50	3.13	2.52	(3.19)
tibia	3.63	4.54	4.18	2.76	(5.65)
metatarsus	—	5.52	4.67	3.87	(5.59)
tarsus	1.82	3.19	2.94	2.39	(3.01)
total	11.53	23.56	21.06	16.15	(23.91)

Palp (Fig. 6A). Cymbium with long, skewer-like, light brown, weak sub-erect spines distributed on distal half of d surface. RTA not swollen, not digitate; covered with d and rd short blunt spines which continue and become pointed on rv edge of tibial excavation; c. 13 longer pointed spines

suspended from short straight DTA. TEM misshapen pallid, adjacent to RTA. TET indistinct on pl surface of TEM. *Bulb.* (Fig. 6B,C) Embolic rl flange with 4 prominent and 3 minor folds; margin gently convexly curved. Embolus tip sinuous from d aspect, appearing swollen from lateral aspect by thin flange suspended from tip. Embolic apophysis pd, acute angled, placed near tip above swelling, best observed from d aspect. *Scopula.* Complete on tarsi I and II; weak and incomplete on metatarsi I and II; absent on legs III and IV. *Trichobothria.* Palp: tarsi 9, tibia pd 5, rd 6. Leg I: tarsi 12, metatarsi 13, tibia pd 6, rd 6. Leg II: tarsi 11, metatarsi 13, tibia pd 6, rd 6. Leg III: tarsi 11, metatarsi 10, tibia pd 4, rd 5. Leg IV: tarsi 11, metatarsi 12, tibia pd 6, rd 6. *Leg spination.* Leg I (Fig. 6E,F): tarsi bilateral rows weak small spines adjacent to scopula pv 6, rv 4; metatarsi v 010, pl distal cluster of 17, rl distal cluster of 3; tibia v 012. Leg II (Fig. 6G,H): tarsi bilateral rows small spines adjacent to scopula pv 8, rv 22; metatarsi v 0111110, pl distal cluster of 11, rl distal cluster of 5. Leg III: tarsi v c. 38, metatarsi v c. 20, d 02220, tibia v 0113, pd 0110, rd 0011; patella pd 7. Leg IV (left leg): tarsi v c. 32; metatarsi v c. 14; tibia v 0112. *Abdomen.* Dorsum with sparse erect bristles and remains of bristles; underlying fine hairs. Venter covered with long weak brown bristles.

Remarks. The species may be confused with other species included in this work that also have the male bulb with a sinuous tip but is separable from them by reference to the position of the small, pd, embolic apophysis.

Etymology. The species is named in recognition of a good friend of GW, J. Bruce Campbell, late of Gerringong, NSW.

Distribution and natural history. (Fig. 24A) This species is known only from the type locality, c. 48 km North of the town of Singleton, N.S.W. The burrow is unknown.

Misgolas yorkmainae n.sp.

Figs 7A–J, 24A

Type material. HOLOTYPE ♂, AM KS38616, Kerewong State Forest, nr Lorne, (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1600, D. Milledge. PARATYPES ♂♂: AM KS1553, Kerewong SF, nr Lorne, site 108, Kendall Forest Management Area, subtropical rainforest (31°36'S 152°34'E), 28 May 1978, pit fall trap field No. 1167, D. Milledge. AM KS5419, Kerewong SF, nr Lorne, site 108(2), (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1597, D. Milledge. AM KS50020, Lorne SF, nr Lorne, site 86(3), 31°35'S 152°37'E, 15 July 1979, pit fall trap field No. 1593, D. Milledge. AM KS86230, all details as for paratype AM KS5419. All type specimens brittle & easily damaged, possibly first preserved in formalin.

Selection of other material examined. ♂♂, AM KS38615, Bulga State Forest, Bobbin Fire Trail, 100 m from Padmans Road (31°37'S 152°10'E), 620 m, 4 Feb.–9 Apr. 1993, pit fall trap site 57BM, M. Gray, G. Cassis. AM KS48653, data as for AM KS38615. AM KS38657, Mt. Boss State Forest, 17 1040, North Plateau Rd. at Plateau Beech Picnic Area. Small gully near picnic area end of Plateau Rd. (31°10'S

152°19'E), 4 Feb.–9 Apr. 1993, pit fall trap site 32BG, M. Gray, G. Cassis. AM KS38661, Mt. Boss State Forest, 17 1120, North Plateau Rd. about 1.5 km by track from Plateau Beech Picnic Area (31°10'S 152°19'E), 4 Feb.–9 Apr. 1993, pit fall trap site 32BM, M. Gray, G. Cassis.

Diagnosis. In male: large dark tan spiders, carapace length c. 8.3–9.1; retrodorsal surface of metatarsi IV with at least 2 spines (Fig. 7I); venter entirely pallid (Fig. 7J). Bilateral rows of small spines adjacent to scopula on tarsi I and II; bilateral small clusters of spines near distal edges metatarsi I and II (Fig. 7E–H). Palpal bulb (Fig. 7B,C) embolic flange with c. 10 minute folds; embolus with prolateral bend near tip, apophysis absent. Retrolateral tibial apophysis abruptly swollen midway, distal tibial apophysis massive, cymbium spines strong, attenuate, sub erect (Fig. 7A,D). Female not known.

Description

Male holotype (Fig. 7A–J). **Size.** Carapace length 8.82, width 7.35. Abdomen length 7.64, width 5.00. **Colour.** In alcohol limbs and carapace dark tan; dark brown smudges absent from lateral limb surfaces. Abdomen dorsum dark brown with 6 pallid transverse chevrons. Sparse fine pallid hairs most concentrated on carapace near perimeter & extending onto coxae. Venter entirely pallid. **Carapace.** Edge fringed with many long black bristles which extend onto a raised post foveal surface. Line of c. 9 (some rubbed off) median bristles on caput arch. Group of 6 bristles between PME, 7 bristles on clypeus. Area below clypeus on pleuron membrane not chitinous, without setae. Fovea width 1.43, deep, slightly procurved, edges recurved; posterior wall centrally divided by two pitted intrusions. **Eyes.** Raised on mound. Area immediately adjacent to eyes black; anterior width 1.56, posterior width 1.48, length 0.96, width/length ratio 1.63. Line joining posterior edges of ALE transects anterior third of AME. Posterior row recurved in front and behind. **Chelicerae.** Rastellum row of 6(6) strong spines, few smaller spines retreat along pd edges. Intercheliceral tumescence not examined. Fang groove with 9(8) promarginal teeth & 12(12) smaller retromarginal/intermediate row teeth. **Labium.** Bulbous, raised, length 0.87, width 1.05. Labio-sternal suture broad, medially divided. **Maxillae** c. 4–5 (4–5) anteroventral basally thickened setae in lieu of developed cuspules. **Sternum.** Length 4.97, width 3.75. Sigilla, anterior pairs small, round, posterior pair larger, ovate, all their own diameter from margin. **Legs.** Tibia I with distal bifid apophysis; both processes “stump-like” with 2(2) short blunt spines.

	palp	I	II	III	IV
femur	4.78	8.53	8.04	6.88	8.63
patella	2.21	4.41	4.11	3.32	4.11
tibia	4.35	6.276	14.435	7.84	
metatarsus	—	6.96	6.32	5.89	8.13
tarsus	2.03	3.52	3.44	3.44	4.05
total	13.37	29.69	28.05	23.88	32.76

Palp (Fig. 7A,D). Cymbium with 37(33) strong, attenuate, sub-erect spines covering anterior half of d surface. RTA abruptly swollen midway, d and rd surfaces covered with short pointed spines; rv edge of tibial excavation and

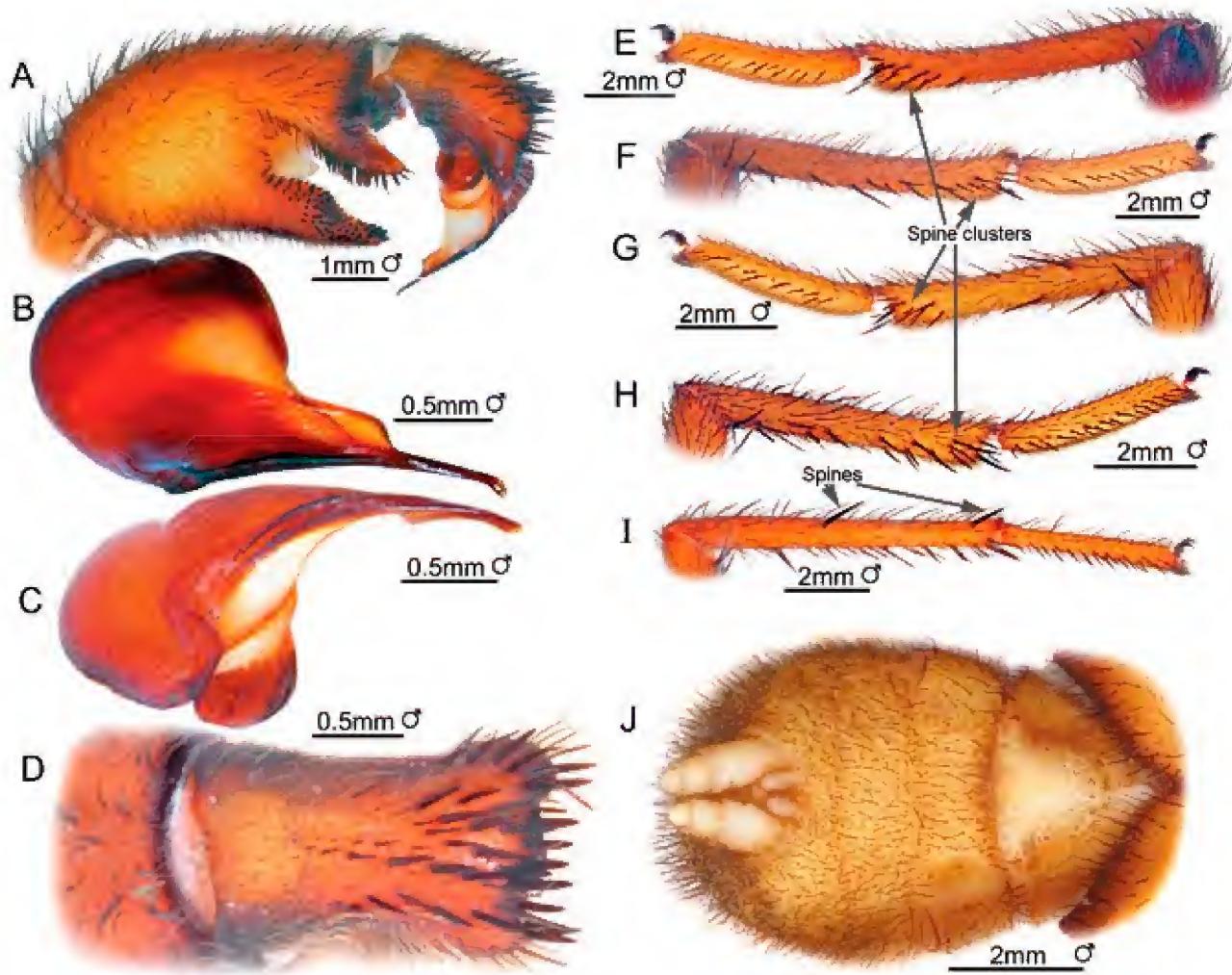


Fig. 7. *Misgolas yorkmainae* n.sp. A–J ♂, holotype AM KS38616. (A), right palp retro-lateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), left cymbium dorsal. (E, F), right tarsus and metatarsus I: E, prolateral; F, retro-lateral. (G, H), right tarsus and metatarsus II: G, prolateral; H, retro-lateral. (I), right tarsus and metatarsus IV retro-lateral. (J), venter.

straight massive DTA suspends brush of longer spines. TEM prominent, pallid, adjacent to RTA; TET not seen. **Bulb.** (Fig. 7B,C). Embolic rl flange with c. 10 minute folds, margin distally sharply convex curved under embolus as if twisted; embolus with pl bend near tip, apophysis absent. **Scopula.** Complete on tarsi I and II; small remnants on metatarsi I and II; absent on legs III and IV. **Trichobothria.** Palp: tarsi 11, tibia pd 6, rd 6. Leg I: tarsi 13, metatarsi 12, tibia pd 6, rd 6. Leg II: tarsi 12, metatarsi 11, tibia pd 7, rd 7. Leg III: tarsi 12, metatarsi 12, tibia pd 7, rd 7. Leg IV: tarsi 12, metatarsi 13, tibia pd 9, rd 8. **Leg spination.** Leg I (Fig. 7E,F): tarsi bilateral rows small spines adjacent to scopula pv 12, rv 16; metatarsi apical pv cluster of 12, rv band of 18; tibia pv 011223. Leg II (Fig. 7G,H): tarsi bilateral rows small spines adjacent to scopula pv 16, rv 23; metatarsi pv 0111cluster of 9, rv band of 11 including apical cluster of 8, pd 010; tibia v 0111112. Leg III: tarsi v 62; metatarsi v 21, pd 011110, rd 010110; tibia pl 0110, rl 0110; patella pd 2. Leg IV (Fig. 7I): tarsi v 48; metatarsi v 25, rd 001010; tibia v 8, rl 01110. **Abdomen.** Dorsum covered with long brown bristles and underlying fine pallid hairs. Venter covered by short brown bristles.

Etymology. The species is named in recognition of Dr Barbara York Main, doyenne of Australian trapdoor spiders.

Distribution and natural history. (Fig. 24A) This species is known only from the type locality, the Kerewong State Forest, near the town of Lorne, N.S.W. The burrow is unknown.

Misgolas helensmithae n.sp.

Figs 8A–J, 24A

Type material. HOLOTYPE ♂, AM KS48654, Bulga State Forest, Homewoods Road, 2.8 km West of Knodingbul Road (31°37'S 152°07'E), 690 m, 4 Feb.–9 Apr. 1993, pit fall trap, site 57CR, M. Gray, G. Cassis. PARATYPES ♂♂: AM KS38642, AM KS92875, AM KS92876, for all paratypes data as for holotype.

Diagnosis. In male: medium-large sized dark tan spider, carapace length c. 7.3–8.4; retrodorsal surface of metatarsi IV with spines (Fig. 8I); venter entirely pallid (Fig. 8J). Tarsi I and II with bilateral rows of small spines adjacent to scopula; metatarsi I and II with bilateral distal clusters of

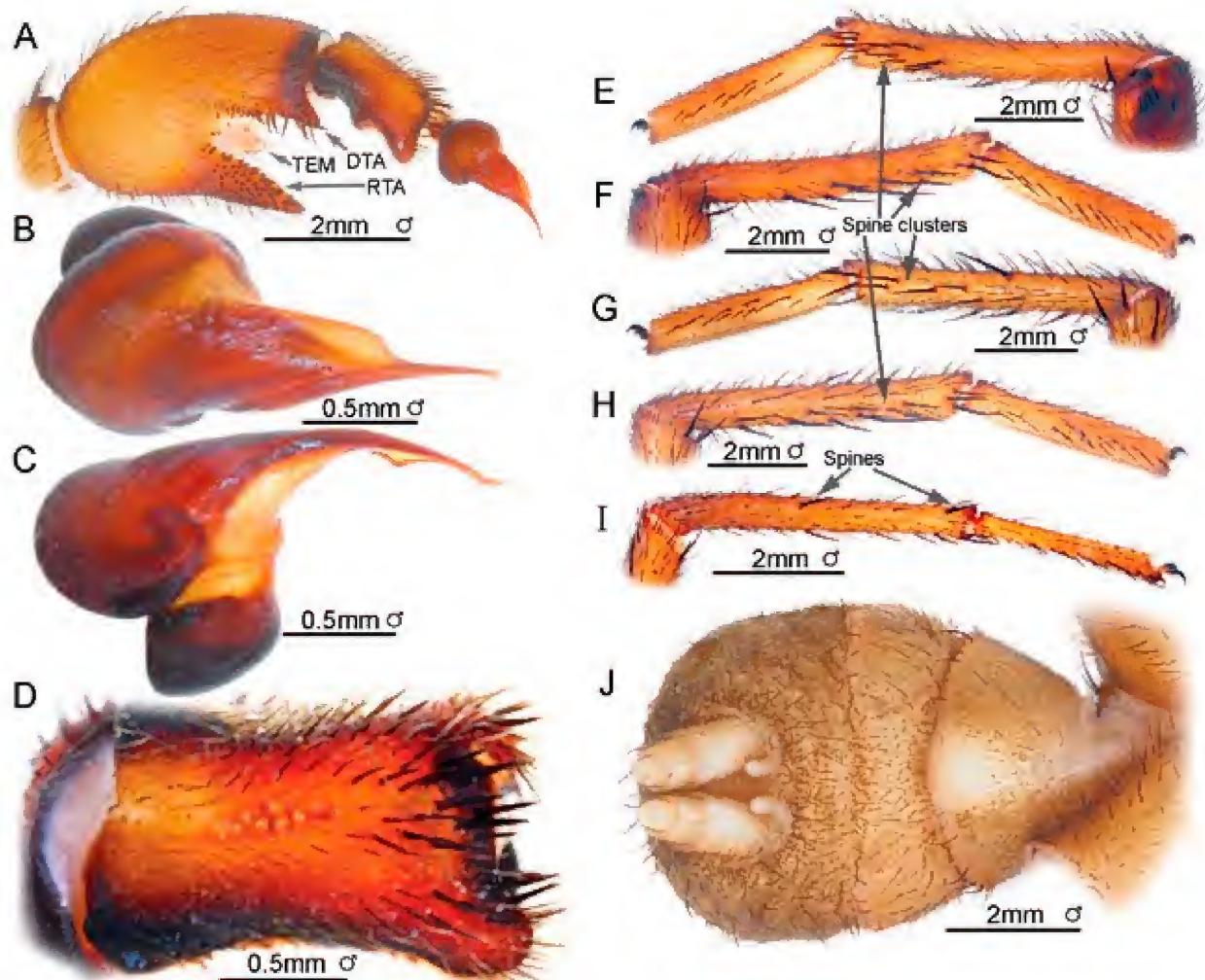


Fig. 8. *Misgolas helensmithae* n.sp. A–H, J ♂, holotype AM KS48654: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), right cymbium dorsal. (E, F), right tarsus/metatarsus I: E, prolateral; F, retrolateral. (G, H), right tarsus/metatarsus II: G, prolateral; H, retrolateral. (J), venter. (I) ♂, paratype AM KS38642: right tarsus/metatarsus IV retrolateral.

spines (Fig. 8E–H). Palpal bulb (Fig. 8B, C) with retrolateral embolic flange with c. 20 minute folds; embolus straight from dorsal aspect, apophysis absent. Retrolateral tibial apophysis digitate; palpal tibia as figured (Fig. 8A). Female not known.

Description

Male holotype (Fig. 8A–J). *Size.* Carapace length 8.42, width 6.66. Abdomen length 6.63, width 4.42. *Colour.* In alcohol carapace, chelicerae and limbs dark tan, v surfaces much paler. Dark brown smudges absent on limbs. Sparse cover of prostrate pallid hairs on carapace, absent on limbs. Abdomen dorsum mottled dark brown bearing c. 5 pallid transverse chevrons. Venter entirely pallid. (Fig. 8J). *Carapace.* Edge fringed with black bristles which encroach onto posterior fifth of post foveal surface. Few small black bristles scattered on caput; line of 6 median bristles on caput arch; 2 bristles between PME, 5 bristles on clypeus; 3 small bristles on weakly chitinous pleuron below clypeus. Fovea width 1.51, gently recurved; posterior wall not pitted. *Eyes.* Raised on mound. Area immediately adjacent to eyes black excepting between ALE and between PME. Anterior width 1.23, posterior width 1.15, length 0.79, width/length ratio

1.56. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae.* Rastellum row of 5(6) spines; few smaller spines receding along anteroental edge of chelicerae. Intercheliceral tumescence distinct, white, not raised, bearing sparse cover of minute brown prostrate setae. Fang groove with 9(18) promarginal teeth and 15(13) smaller retromarginal/intermediate row teeth. *Labium.* Bulbous, length 0.74, width 1.41. Labio-sternal suture broad, narrowing centrally, divided. *Maxillae* c. 17(21) anteroental long weak attenuate cuspules. *Sternum.* Length 4.42, width 3.07. Sigilla all small, round: Anterior pairs submarginal, posterior pair twice diameter from margin. *Legs.* Tibia I with distal bifid apophysis. Distal process with 1(2) short spine. Proximal process with 3(3) longer spines; 1(1) megaspine rises from d surface of base of proximal process.

	Palp	I	II	III	IV
femur	3.99	7.00	6.69	6.14	7.74
patella	1.84	3.25	3.07	2.82	3.68
tibia	3.80	5.34	5.16	3.87	6.94
metatarsus	—	6.08	5.53	5.22	7.18
tarsus	1.66	3.50	3.31	3.13	3.81
total	11.29	25.17	23.76	21.18	29.35

Palp (Fig. 8A,D). Cymbium with c. 32, many broken away, long, attenuate, anteriorly inclined spines distributed over distal third of d surface. RTA digitate centrally slightly swollen, d and rd surfaces covered with squat pointed spines; proximal half of rv edge of tibial excavation suspending c. 23 similar spines; distal half with a sparse brush of c. 15 longer spines terminating at end of short DTA. Small pointed TEM (Fig. 8A) with faint TET adjacent to RTA. *Bulb*. (Fig. 8B,C) Embolic rl flange with c. 21 minute folds, margin distally sharply convexly curved under embolus as if twisted. Embolus straight from d aspect, apophysis absent. *Scopula*. Complete on tarsi I and II, sparse distal remnants on metatarsi I and II, absent on legs III and IV. *Trichobothria*. Palp: tarsi 9, tibia pd 5, rd 5. Leg I: tarsi 10, metatarsi 12, tibia pd 5, rd 5. Leg II: tarsi 11, metatarsi 11, tibia pd 6, rd 6. Leg III: tarsi 12, metatarsi 10, tibia pd 6, rd 7. Leg IV: tarsi 11, metatarsi 15, tibia pd 7, rd 7. *Leg spination*. Leg I (Fig. 8E,F): tarsi pv line of 9 adjacent scopula margin, rv line of 17 adjacent scopula margin; metatarsi pv distal cluster of 12, rv cluster of 12 on distal three-quarters; tibia v 0101123, pd 01010; patella pd 1. Leg II (Fig. 8G,H): tarsi pv line of 12 adjacent scopula margin, rv line of 14 adjacent scopula margin; metatarsi pv cluster of 9 on distal two-thirds, rv cluster of 14 on distal four-fifths, pd 010; tibia v 011114, pd 011110; patella pd 1. Leg III: tarsi v 25 scattered; metatarsi v 14 scattered, d 002220; tibia v 7 scattered, pl 0110, rl 0110; patella pd 4. Leg IV (Fig. 8I): tarsi v 24 scattered; metatarsi v 13 scattered, rd 001010; tibia v 7 scattered. *Abdomen*. Median band of c. 12 long bristles on dorsum; sparse cover short brown bristles with underlying prostrate setae. Venter covered with small brown bristles.

Etymology. The species is named in recognition of arachnologist Dr Helen Smith of the Australian Museum, Sydney.

Distribution and natural history. (Fig. 24A) This species is known only from the type locality, the Bulga State Forest, c. 30 km ENE of the town of Comboyne, NSW. The burrow is unknown.

Misgolas weigelorum n.sp.

Figs 9A–F, 24C

Type material. HOLOTYPE ♂, AM KS10406, Gosford (33°26'S 151°20'E), 10 Jan. 1982, Ramon Mascord.

Diagnosis. In male: medium sized brown spider, carapace length c. 6.44; retrodorsal surface of metatarsi IV with at least one spine (Fig. 9E); venter with dark brown pattern as figured (Fig. 9F). Palpal bulb (Fig. 9B,C) with retrolateral embolic flange edge gently curved, with 5 prominent folds and 2–3 minor folds; embolus tip with slight prolateral bend; erect dorsal apophysis placed about midway on embolus. Palpal tibia as figured (Fig. 9A); cymbium distal dorsal surface with weak pallid skewer-like bristles, spines absent (Fig. 9D). Female not known.

Description

Male holotype (Fig. 9A–F). **Size.** Carapace length 6.44, width 5.22. Abdomen length 6.08, width 4.17. **Colour.** In alcohol chelicerae, prosoma and limbs mid tan. Weak dark

brown smudges perceptible on lateral surfaces of patella and tibia. Abdomen dorsum dark brown bearing 6 pallid transverse chevrons. Venter pallid with pattern of dark brown blotches most concentrated on posterior third (Fig. 9F). *Carapace*. Edge with fringe of long black bristles which encroach onto and cover posterior third of post foveal surface. Remains of line of c. 12 median setae on caput arch and remains of c. 8 setae between PME; 12 bristles on clypeus together with fine pallid setae; weakly chitinous pleuron membrane below clypeus with 3 bristles and few pallid setae. Fine golden hairs concentrated along side edge of anterior half of carapace. Fovea width 1.17, slightly recurved; posterior wall centrally divided by pitted intrusion. *Eyes*. Raised on mound. Area immediately adjacent to eyes black. Anterior width 1.07, posterior width 1.02, length 0.74, width/length ratio 1.45. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row straight in front, recurved behind. *Chelicerae*. Rastellum single row of 7(7) spines. Intercheliceral tumescence detail not visible without damaging chelicerae. Fang groove with 8(8) promarginal teeth and 12(10) smaller retromarginal/intermediate row teeth. *Labium*. Length 0.67, width 1.00. Labio-sternal suture continuous, narrow, broadening laterally. *Maxillae* c. 53(50) anteroventral elongate pointed cuspules, many terminated by a hair. *Sternum*. Length 3.68, width 2.58. Sigilla all round: Anterior pairs small, first pair own diameter from margin, second pair twice diameter from margin, posterior pair larger & three diameters from margin. *Legs*. Tibia I with apical bifid apophysis. Distal process surmounted by 2(2) short pointed spines. Proximal process surmounted by 2(2) long pointed spines, right process basally supporting long erect spine appearing as a megaspine.

	palp	I	II	III	IV
femur	3.67	6.20	5.71	4.61	6.14
patella	1.66	3.07	2.82	2.21	2.82
tibia	3.71	4.85	4.24	2.76	5.34
metatarsus	—	5.28	4.45	3.96	5.65
tarsus	1.62	3.13	2.82	2.52	3.07
total	10.66	22.53	20.04	16.06	23.02

Palp (Fig. 9A,D). Many weak, long, pallid, skewer-like bristles point forward from cymbium distal d surface; spines absent. RTA without swelling, d and rd surfaces covered with short pointed spines. Brush of c. 16 longer spines suspended from rv edge of tibial excavation. DTA hooked, with c. 15 short v spines. TEM large, pallid, hemispherical, contiguous with RTA; TET distinct on pl side of TEM. *Bulb*. (Fig. 9B,C) Embolic rl flange gently curved, with 5 major and c. 1–2 minor folds. Embolus straight, tip with slight pl bend. Embolic d apophysis erect, placed c. midway on embolus. *Scopula*. Complete on all tarsi, weak and incomplete on all metatarsi. *Trichobothria*. Palp: tarsi 11, tibia pd 6, rd 5. Leg I: tarsi 12, metatarsi 12, tibia pd 6, rd 5. Leg II: tarsi 12, metatarsi 11, tibia pd 6, rd 5. Leg III: tarsi 10, metatarsi 10, tibia pd 6, rd 6. Leg IV: tarsi 11, metatarsi 12, tibia pd 6, rd 6. *Leg spination*. Spines absent on all tarsi. Leg I: metatarsi v 010; tibia v 01112. Leg II: metatarsi v 011; tibia v 0113. Leg III: metatarsi v 013, pd 001110, rd 0001010; tibia v 0113, pd 0110, rd 0110; patella pd 7. Leg IV (Fig. 9E), metatarsi v 8, rd 010; tibia v 7, pd 00110, rd 010. *Abdomen*. Dorsum with cover of long brown bristles. Venter covered with shorter brown hairs.

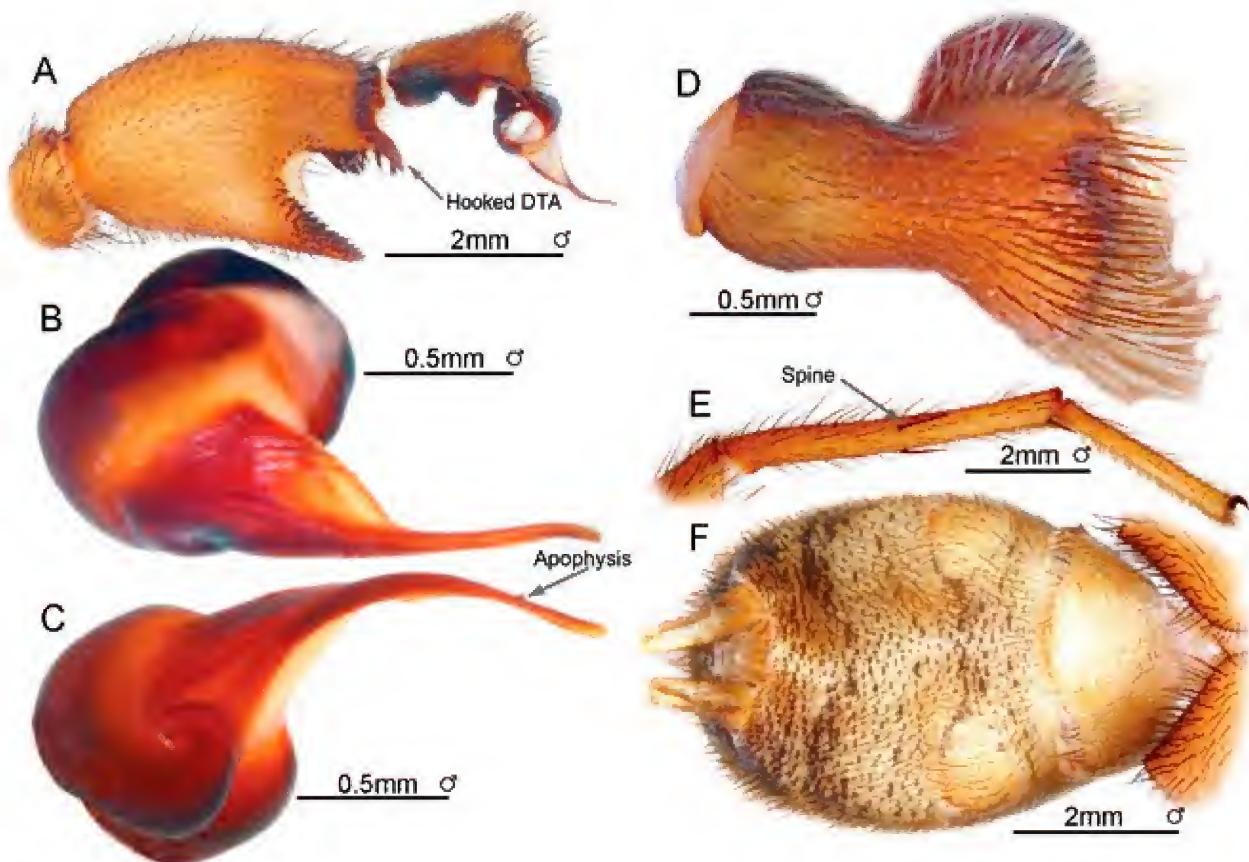


Fig. 9. *Misgolas weigelorum* n.sp. A–F ♂, holotype AM KS10406: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), right cymbium dorsal. (E), right tarsus and metatarsus IV retrolateral. (F), venter.

Etymology. The species is named in recognition of Mr and Mrs John Weigel, proprietors of the Australian Reptile Park, Gosford, Australia and the source of countless spider specimens given to the Australian Museum, Sydney.

Distribution and natural history. (Fig. 24C) This species is known only from the type locality, the town of Gosford, N.S.W. The burrow is unknown.

Misgolas taiti n.sp.

Figs 10A–F, 24C

Not *Misgolas hubbardi* Wishart, 1992.—Wishart & Rowell, 1997; removed from inclusion under *M. hubbardi* in the present work.

Type material. HOLOTYPE ♂, AM KS5209, Lochinvar (32°42'S 151°27'E), 12 May 1980, Bell (collector). PARATYPE ♂, AM KS3518, Oakhampton (32°42'S 151°34'E), 13 Aug. 1979, Learmonth (collector). Both type specimens brittle as if preserved some time post death.

Diagnosis. In male: large dark tan spiders, carapace length c. 8.6–9.3; retrodorsal surface of metatarsi IV without spines or with weak spinules (Fig. 10D); spines absent on all tarsi (Fig. 10E); venter with pattern of brown speckles most concentrated in median longitudinal band (Fig. 10F). Palpal bulb (Fig. 10B,C) retrolateral embolic flange with c. 10 folds; embolic apophysis placed c. one-third of way from embolus

tip towards embolic flange and bent over 90° appearing retrolaterally placed, apex flat, not thornlike. Conformation of palp as figured (Fig. 10A). Female not known.

Description

Male holotype (Fig. 10A–F). *Size.* Carapace length 8.63, width 7.35. Abdomen length 10.61, width 6.27. *Colour.* In alcohol carapace, legs, palps and chelicerae dark tan. Dark brown smudges absent from lateral limb surfaces. Fine grey hairs on carapace anterior to fovea and proximal limb segments. Abdomen dorsum dark brown with pattern of pallid bands in bilateral series of six. Venter (Fig. 10F) pallid with brown speckles most concentrated in median longitudinal band. *Carapace.* Edge fringed with black bristles that encroach onto posterior third of post foveal surface. Line of c. 6 median bristles on caput arch. Group of 5 broken bristles between PME; 7 posteriorly inclined bristles on clypeus; group of c. 10 smaller setae on weakly chitinous area extending onto pleuron membrane below clypeus. Fovea width 1.70, slightly recurved, edges recurved, posterior wall centrally divided by pitted intrusion. *Eyes.* Raised on mound, area immediately adjacent to eyes black excepting PME; anterior width 1.43, posterior width 1.31, length 0.90, width/length ratio 1.59. Line joining posterior edges of ALE bisects AME. Posterior row procurved in front, recurved behind. *Chelicerae.* Rastellum row of 4(6) spines on anteroventral edge. Several more retreating behind. Fang groove teeth & intercheliceral tumescence detail not visible without damaging chelicerae. *Labium.* Bulbous, length 1.07,

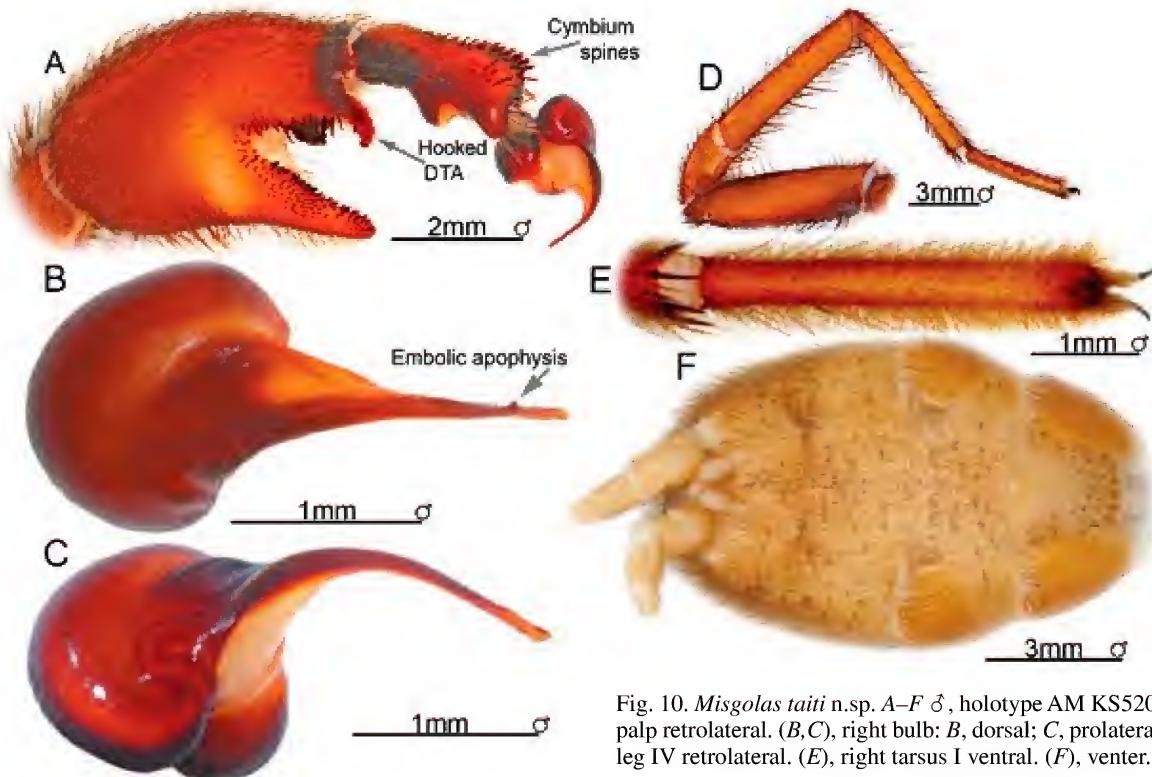


Fig. 10. *Misgolas taiti* n.sp. A–F ♂, holotype AM KS5209: (A) right palp retro-lateral. (B,C) right bulb: B, dorsal; C, prolateral. (D) right leg IV retro-lateral. (E) right tarsus I ventral. (F) venter.

width 1.36. Labio-sternal suture broad, continuous. *Maxillae* c. 70(68) short blunt antero-oral cuspules. *Sternum*. Bulbous. Length 5.58, width 3.82. *Sigilla* all round, equal size; anterior pair close to margin, mid pair their own diameter from margin, posterior pair twice their diameter from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short straight spines, proximal process with 5(4) long compact spines arising from base of apophysis process.

	palp	I	II	III	IV
femur	5.22	9.60	7.74	6.20	8.04
patella	2.39	4.31	3.92	3.13	4.02
tibia	4.97	6.08	5.49	3.87	7.25
metatarsus	—	6.17	5.78	5.40	7.35
tarsus	2.45	3.43	3.33	3.38	3.82
total	15.03	29.59	26.26	21.98	30.48

Palp (Fig. 10A). Cymbium with c. 90 short (longer on lateral edges of group), blunt spines anteriorly inclined c. 45° to cymbium axis and distributed over distal third of d surface. RTA d surface swollen midway, covered with squat pointed d spines which continue onto rv edge of tibial excavation; rv edge of excavation with extended brush of c. 26 long spines. DTA hooked, devoid of long spines. TEM prominent, pallid, adjacent to RTA. TET distinct on pl base of TEM. *Bulb*. (Fig. 10B,C) Embolic rl flange with c. 10 fine folds, margin straight. Embolus narrow, apophysis placed c. third of way from embolus tip towards embolic flange, bent over 90° appearing rl placed on embolus; apophysis apex flat, not thornlike. *Scopula*. Dense and complete on all tarsi; dense on distal three-quarters of metatarsi I, distal half of metatarsi II, thin on distal third of metatarsi III, a remnant only on metatarsi IV. *Trichobothria*. Palp: tarsi 9, tibia pd 6, rd 8. Leg I: tarsi 14, metatarsi 13, tibia pd 6, rd 6. Leg II: tarsi 14, metatarsi 13, tibia pd 8, rd 7. Leg III: tarsi 12, metatarsi 14, tibia pd 7, rd 8. Leg IV: tarsi 15, metatarsi 16, tibia pd 8, rd

7. *Leg spination*. (Fig. 10D,E) Spines absent on all tarsi. Leg I: metatarsi v 012, pl 010; tibia v 011112. Leg II: metatarsi v 012, pl 010; tibia v 7 scattered, pd 0110. Leg III: metatarsi v and bilateral c. 22 scattered, d 002220; tibia v 0123, pl 0110; patella pd 11. Leg IV: metatarsi v 11 scattered. *Abdomen*. Separated. Dorsum covered with long brown weak bristles. Shorter prostrate weak bristles cover venter.

Etymology. The species is named in recognition of Dr Noel Tait whose work over many years has contributed greatly to our understanding of Australian invertebrate wildlife.

Distribution and natural history. (Fig. 24C) This species is known only from the type localities, the neighbouring towns of Lochinvar and Oakhampton, N.S.W. The burrow is unknown.

Misgolas sydjordanae n.sp.

Figs 11A–H, 24C

Type material. HOLOTYPE ♂, AM KS16132, Kerewong State Forest, nr Lorne, (31°36'S 152°34'E), 7 Nov.–10 Dec. 1978, pit fall trap field No. 1559, D. Milledge. Specimen, possibly first preserved in formalin, brittle & easily damaged.

Diagnosis. In male: large dark brown spider, carapace length c. 8.13; retrodorsal surface of metatarsi IV usually without spines (Fig. 11D); venter entirely dark brown (Fig. 11F). All tarsi & metatarsi I & II without spines (Fig. 11G,H). Palpal bulb (Fig. 11B,C) retro-lateral embolic flange with c. 7 fine major folds, c. 3 minor folds; embolus straight with subdistal dorsal apophysis. Distal tibial apophysis long, straight, horizontal (Fig. 11A); cymbium dorsal surface almost entirely covered with numerous short spines as figured (Fig. 11E). Female not known.

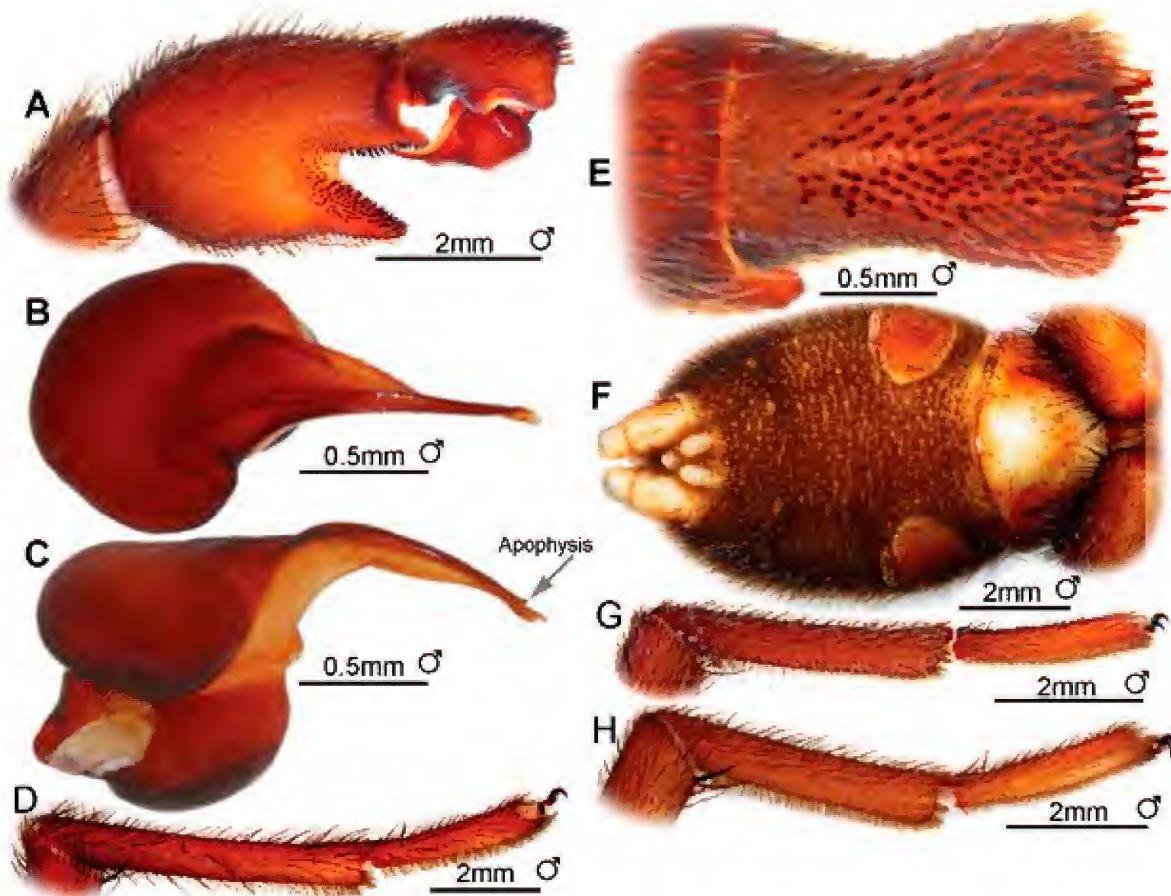


Fig. 11. *Misgolas sydjordanae* n.sp. A–H ♂, holotype AM KS16132: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), right tarsus and metatarsus IV retrolateral. (E), right cymbium dorsal. (F), venter. (G), right tarsus and metatarsus I retrolateral. (H), right tarsus and metatarsus II retrolateral.

Description

Male holotype (Fig. 11A–H). *Size*. Carapace length 8.13, width 7.16. Abdomen length 9.02, width 5.78. *Colour*. In alcohol chelicerae, carapace, abdomen & all femora dark brown; distal limb segments lighter. Dark brown smudges absent from lateral limb surfaces. Abdomen dorsum with 4 inconspicuous pale transverse chevrons. Fine pallid reflective hairs bedeck carapace & proximal limb segments. Venter entirely dark brown. *Carapace*. Edge fringed with long black bristles which encroach onto posterior third of post foveal surface. Posterior edge truncate. Line of c. 17 median bristles on caput arch (some rubbed off); group of 4 between PME, 15 on clypeus. Weakly chitinous area below clypeus on pleuron membrane with c. 8 setae. Fovea width 1.89, slightly procurved, deep; posterior wall not pitted. *Eyes*. Raised on mound. Area immediately adjacent to eyes black; anterior width 1.54, posterior width 1.28, width/length ratio 1.86. Posterior row recurved in front & behind. *Chelicerae*. Rastellum row of 6(7) spines, c. 5(5) disordered behind. Fang groove, teeth & intercheliceral tumescence detail not visible without damaging chelicerae. *Labium*. Low, length 0.72, width 1.25. Labio-sternal suture deep, narrow, continuous. *Maxillae* c. 64(72) short, blunt, anteroventrally widespread cuspules. *Sternum*. Bulbous, length 4.79, width 3.62. Sigilla all small, round; anterior pair 1 diameter from margin, mid-pair 2 diameters from margin, posterior pair three diameters from margin. *Legs*. Tibia I with distal bifid

apophysis. Distal process with 2 long blunt spines separated by 1 short blunt spine; proximal process with 3(3) long pointed spines.

	palp	I	II	III	IV
femur	4.61	6.86	5.98	5.22	7.25
patella	2.21	3.82	3.43	2.82	3.63
tibia	3.43	4.51	3.92	2.70	6.08
metatarsus	—	4.00	4.31	3.87	5.88
tarsus	1.84	2.84	2.65	2.39	2.84
total	12.09	22.03	20.29	17.00	25.68

Palp (Fig. 11A,E). Cymbium with c. 100 short, mucronate spines anteriorly inclined c. 45° to cymbium axis & distributed over distal five-sixths of d surface. RTA d & rd surfaces covered with squat pointed spines; tibial excavation rv edge & long straight horizontal DTA suspends continuous band of numerous longer spines. TEM prominent, adjacent to RTA, pl face weakly chitinous bearing prominent TET. *Bulb*. (Fig. 11B,C) Embolic rl flange with c. 7 fine major folds and c. 3 minor folds; margin straight. Embolus straight with subdistal d thorn shaped apophysis. *Scopula*. Complete on all tarsi. Weaker & complete on metatarsi I, II and III. Weak & incomplete on metatarsi IV. *Trichobothria*. Palp: tarsi 7, tibia pd 6, rd 6. Leg I: tarsi 15, metatarsi 16, tibia pd 7, rd 6. Leg II: tarsi 10, metatarsi 12, tibia pd 6, rd 6. Leg III: tarsi 9, metatarsi 8, pd 5, rd 6. Leg IV: tarsi 11, metatarsi 13, tibia pd 8, rd 6. *Leg spination*. (Fig. 11D,G,H) Spines absent on all tarsi &

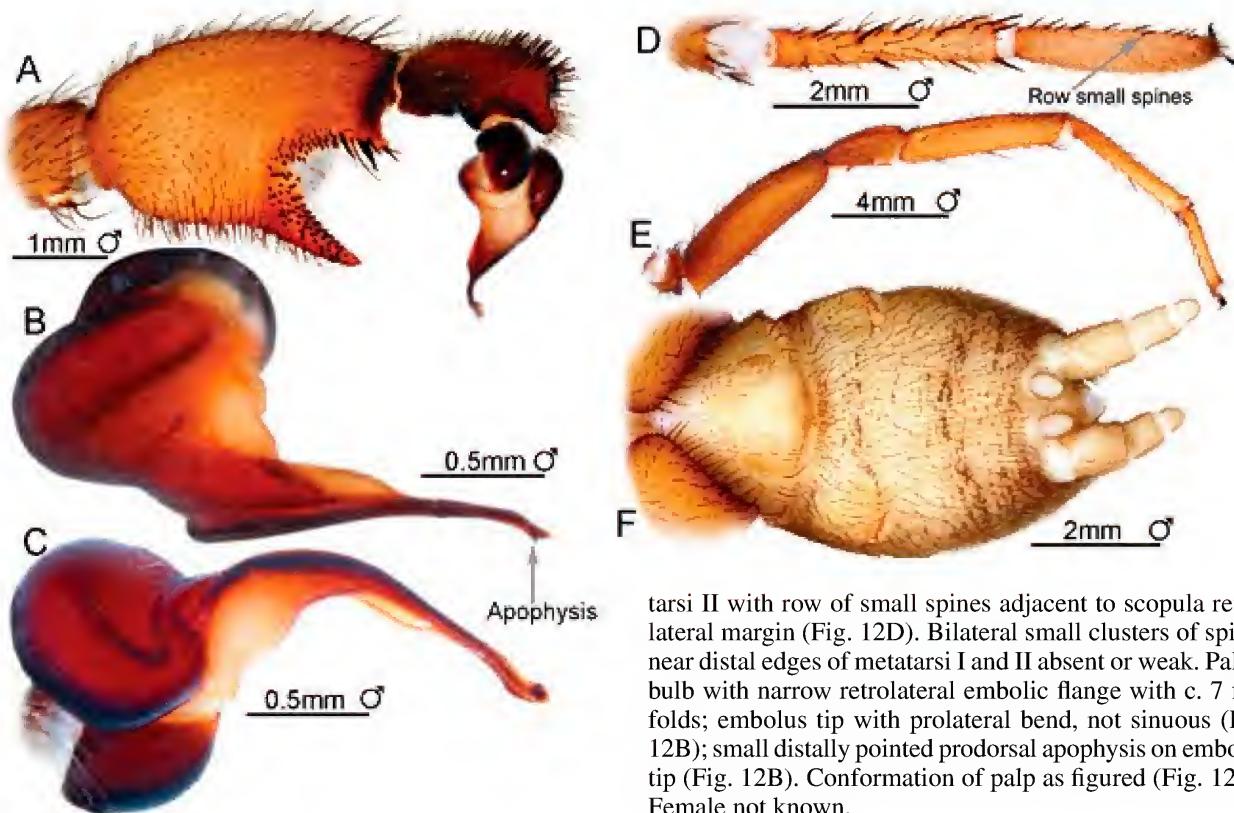


Fig. 12. *Misgolas davidwilsoni* n.sp. A–F ♂, holotype AM KS51761: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), right tarsus and metatarsus II ventral. (E), right leg IV retrolateral. (F), venter.

metatarsi I & II. Leg I: tibia v 0110. Leg II: tibia v 0111. Leg III: metatarsi pd 011010, rd 001110, pl 001000; tibia v 011, pd 01010, rd 00010; patella pd 8. Leg IV: metatarsi v 0100101, rd evidence of lost spine c. midway (absent on left metatarsi), tibia v 21112. **Abdomen.** Dorsum covered with long brown bristles with underlying prostrate pallid hairs. Venter covered with shorter, weaker bristles.

Etymology. The species is named in recognition of Dr Sydney Jordan, innovative trapdoor spider behaviour specialist.

Distribution and natural history. (Fig. 24C) This species is known only from the type locality, the Kerewong State Forest near the town of Lorne, N.S.W. The burrow is unknown.

Misgolas davidwilsoni n.sp.

Figs 12A–F, 24C

Type material. HOLOTYPE ♂, AM KS51761, Lisarow (33°23'S 151°23'E), 28 Jan. 1998, Lyn Abra. PARATYPE ♂, AM KS51775, Wyoming (33°27'S 151°21'E), 25 Feb. 1999, Lyn Abra.

Diagnosis. In male: medium sized tan spider, carapace length c. 7.3–7.8; retrodorsal surface of metatarsi IV without spines (Fig. 12E). Venter pale with pattern of brown speckles in 2–3 weak transverse bands (Fig. 12F). Spines absent on tarsi I;

tarsi II with row of small spines adjacent to scopula retro-lateral margin (Fig. 12D). Bilateral small clusters of spines near distal edges of metatarsi I and II absent or weak. Palpal bulb with narrow retro-lateral embolic flange with c. 7 fine folds; embolus tip with prolateral bend, not sinuous (Fig. 12B); small distally pointed prodorsal apophysis on embolus tip (Fig. 12B). Conformation of palp as figured (Fig. 12A). Female not known.

Description

Male holotype (Figs 12A–F). **Size.** Carapace length 7.31, width 5.77. Abdomen length 7.37, width 4.61. **Colour.** In alcohol carapace, legs, palps and chelicerae mid tan, darker brown smudges absent from lateral limb surfaces. Golden fuscous hairs on caput, absent on limbs. Abdomen dorsum dark brown with distinct pattern of pallid bands in bilateral series of six. Venter pallid with brown speckles most concentrated into three weak transverse bands (Fig. 12F). **Carapace.** Edge fringed with black bristles that encroach onto posterior third of post foveal surface. Line of c. 8 median bristles on caput arch. Group of 10 bristles between PME; 3 posteriorly inclined bristles on clypeus; group of c.10 smaller setae on weakly chitinous area extending onto pleuron membrane below clypeus. Fovea width 1.43, slightly recurved, edges recurved, pitted intrusion absent from posterior wall. **Eyes.** Raised on mound, area immediately adjacent to eyes black, PME excepted; anterior width 1.31, posterior width 1.20, length 0.67, width/length ratio 1.95. Line joining posterior edge of ALE transects anterior third of AME. Posterior row straight. **Chelicerae.** Rastellum row of 6(5) spines on antero-oral edge; few smaller spines retreating along pd edge. Intercheliceral tumescence small, pallid, elongate, raised on a cant. Fang groove with 11(11) promarginal teeth and 14(15) smaller retromarginal/intermediate row teeth. **Labium.** Bulbous, length 0.79, width 1.04. Labio-sternal suture broad, narrowed medially, undivided. **Maxillae** c. 43(51) short blunt antero-oral cuspules. **Sternum.** Length 3.80, width 2.82. Sigilla round, anterior pair small and closest to margin, mid and posterior pairs progressively larger, their own diameter away from margin. **Legs.** Tibia I with distal bifid apophysis; distal process with 2(2) short straight spines, proximal process with 2(2) long bent pointed spines.

	palp	I	II	III	IV
femur	3.44	6.39	5.89	4.85	6.63
patella	1.72	3.19	2.94	2.33	3.07
tibia	3.44	4.61	4.11	2.89	5.71
metatarsus	—	4.42	3.99	3.68	5.46
tarsus	1.72	2.76	2.58	2.34	2.70
total	10.32	21.37	19.51	16.09	23.57

Palp (Fig. 12A). Cymbium with c. 54 long, pointed, skewer-like spines, anteriorly inclined c. 45° to cymbium axis, distributed over distal half of d surface. RTA digitate, not swollen basally, inclined slightly downwards, covered with squat pointed d and rd spines which continue along rv edge of tibial excavation terminating with an extended brush of c. 9 long spines. DTA small, reduced to a mound. TEM large, pallid, adjacent to RTA. TET weak, visible on pl region of TEM. **Bulb**. (Fig. 12B,C) Embolic rl flange narrow, with c. 7 fine folds, margin curved under embolus. Embolus curved pl. Tip with pl bend, surmounted by small distally pointed pd apophysis. **Scopula**. Dense and complete on tarsi I and II; dense on distal fifth of metatarsi I and II; absent on legs III and IV. **Trichobothria**. Palp: tarsi 8, tibia pd 5, rd 5. Leg I: tarsi 10, metatarsi 10, tibia pd 6, rd 6. Leg II: tarsi 10, metatarsi 10, tibia pd 6, rd 6. Leg III: tarsi 9, metatarsi 7, tibia pd 6, rd 5. Leg IV: tarsi 10, metatarsi 11, tibia pd 7, rd 6. **Leg spination**. Leg I: metatarsi v 00113; tibia v 0112. Leg II: (Fig. 12D) tarsi rv row of 13 small spines adjacent to scopula; metatarsi v 12 scattered; tibia v 01113. Leg III: tarsi v 42 scattered; metatarsi v 11 scattered, d 002120; tibia v 0113, pd 010, rd 00110; patella pd 8. Leg IV: (Fig. 12E) tarsi v 35 scattered; metatarsi v 0222. **Abdomen**. Dorsum with cover of long brown hairs increasing in number and becoming finer laterally and covering venter. Dorsum hairs with underlying fine hairs.

Etymology. The species is named in recognition of Dr David Wilson, venoms researcher.

Distribution and natural history (Fig. 24C). This spider is known only from the Lisarow-Berkley Vale locality of the N.S.W. Central Coast. The burrow is unknown.

Misgolas crawfordorum n.sp.

Figs 13A–K, 24C

Type material. HOLOTYPE ♂, AM KS86231, 87 Macwood Rd, Smiths Lake (32°23'06"S 152°30'12"E), 24 Nov. 2005, GW. ALLOTYPE ♀, AM KS86232, excavated from front garden, other details same as holotype.

Diagnosis. medium (male carapace length, c. 6.45) to large (female carapace length, c. 13.6 maximum) dark brown spiders; retrodorsal surface of metatarsi IV without spines (Fig. 13E,G); venter entirely black (Fig. 13D,H). All femora dark brown, distal limb segments, including patella, much paler (Fig. 13E–G). In male: palpal bulb with retrolateral embolic flange with 4 major, c. 2–3 minor folds; embolus with subdistal prolateral apophysis; small blunt dorsal second apophysis placed midway on embolus remote from tip (Fig. 13B,C). Conformation of palp as figured (Fig. 13A); Retrolateral tibial apophysis digitate.

Description

Male holotype (Fig. 13A–E,I,J). **Size.** Carapace length 6.45, width 5.10. Abdomen length 5.89, width 3.68. **Colour.** In alcohol chelicerae, carapace, abdomen dorsum and all femora dark brown; distal limb segments light tan. Venter entirely black. Faint dark brown lateral smudges present on limbs. Abdomen dorsum bearing 5 pallid transverse chevrons. When dry carapace bedecked with golden hirsute sheen (Fig. 13I); leg segments without golden setae. **Carapace.** Edge fringed with black bristles which encroach onto posterior third of post foveal surface and in files along anterior edges of posterior striae. Line of 11 median bristles on caput arch; 10 bristles between PME; 20 bristles on clypeus; weakly chitinous pleuron membrane below clypeus without setae. Fovea width 1.18, straight, recurved edges; posterior wall not pitted. **Eyes.** Raised on mound. Ocular area black. Anterior width 1.18, posterior width 1.11, length 0.70, width/length ratio 1.69. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row straight in front, recurved behind. **Chelicerae.** Rastellum single row of 7(7) spines. Intercheliceral tumescence pallid, superior surface with c. 30 long dark setae. Fang groove with 7(7) promarginal teeth and 11(11) smaller retromarginal/intermediate row teeth. **Labium.** Length 0.59, width 0.92. Labio-sternal suture continuous, broadest laterally. Maxillae c. 40(36) squat rounded anteroental cusps, none terminated by a hair. **Sternum.** Length 3.43, width 2.61. Sigilla all round, anterior pair smallest progressing to third pair largest, each c. their own diameter from margin. **Legs.** Tibia I with distal bifid apophysis. Distal process with 2(2) long straight pointed spines; proximal process 2(3) longer curvilinear pointed spines.

	palp	I	II	III	IV
femur	3.76	7.06 (6.63)	6.08	4.42	6.38 (6.14)
patella	1.66	3.13 (3.13)	2.82	2.21	2.82 (2.89)
tibia	3.24	5.53 (5.53)	4.42	2.70	5.59 (5.59)
metatarsus	—	5.34 (5.46)	4.29	3.62	5.28 (5.22)
tarsus	1.50	3.13 (3.32)	2.89	2.39	2.83 (2.58)
total	10.16	24.19 (24.07)	20.50	15.34	22.90 (22.42)

Leg formula: 1 4 2 3.

Palp (Fig. 13A). Many long, anteriorly inclined, skewer-like blunt spines on distal half of cymbium d surface. RTA digitate, not swollen, d and rd surfaces covered with long pointed spines becoming shorter around rv edge of tibial excavation and continuing to end of long horizontal DTA. TEM, with posteroventral TET, adjacent to RTA. **Bulb**. (Fig. 13B,C) Embolic rl flange with 4 major folds, c. 2–3 minor folds, margin straight, twisted and extended under short embolus; subdistal pl embolic apophysis terminates long embolic ridge. Small blunt d second apophysis placed midway on embolus remote from tip. **Scopula**. Complete on all tarsi, incomplete on all metatarsi. **Trichobothria**. Palp: tarsi 6, tibia pd 5, rd 5. Leg I: tarsi 12, metatarsi 14, tibia pd 7, rd 7. Leg II: tarsi 12, metatarsi 14, tibia pd 7, rd 7. Leg III: tarsi 11, metatarsi 10, tibia pd 6, rd 7. Leg IV: tarsi 12, metatarsi 14, tibia pd 7, rd 6. **Leg spination**. Spines absent on all tarsi. Leg I: metatarsi v 011000; tibia v 01112. Leg II: metatarsi v 002100; tibia v 011112. Leg III: metatarsi v 010, d 002220; tibia pl 001110, rl 001110; patella pd 8. Leg IV (Fig. 13E): metatarsi v 020, tibia v 4. **Abdomen**. Dorsum with cover of long brown bristles. Venter with cover of shorter weak bristles.

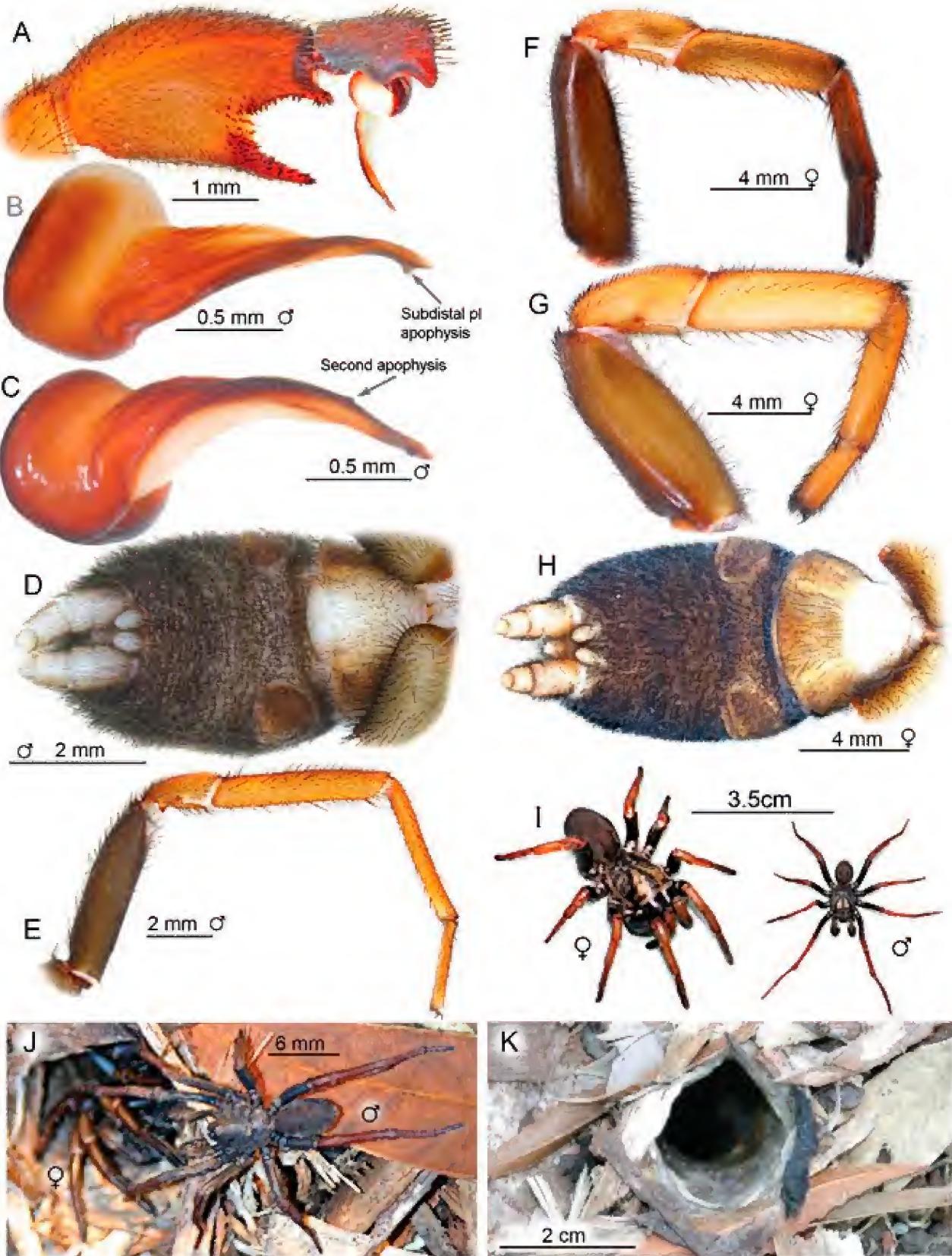


Fig. 13. *Misgolas crawfordorum* n.sp. A–E ♂, holotype AM KS86231: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), venter. (E), right leg IV retrolateral. F–H ♀, allotype AM KS86232. (F), right leg I retrolateral. (G), right leg IV retrolateral. (H), venter. (I), ♀ and ♂ spiders relative sizes. (J), ♀ and ♂ spiders courting. (K), burrow entrance.

Female allotype (Fig. 13F–K). *Size.* Carapace length 13.62, width 9.64. Abdomen length 14.84, width 8.72. *Colour.* In alcohol chelicerae dark brown, carapace and all femora brown, distal limb segments light tan. Abdomen dorsum with 4 pallid transverse chevrons. Venter entirely dense black. Palp and legs I and II with bilateral dark brown smudges (Fig. 13F). When dry carapace bedecked with golden hirsute sheen (Fig. 13I); golden setae extend onto proximal leg segments. *Carapace.* Edge fringed with pale brown hairs which encroach onto posterior third of post foveal surface and in files along anterior edges of posterior striae. Line of 10 (some removed) median bristles on caput arch; 14 bristles between PME; c. 40 bristles on clypeus; weakly chitinous pleuron membrane below clypeus without setae. Fovea width 3.14, straight with recurved edges; posterior wall not pitted. *Eyes.* Placed on low mound. Area immediately adjacent to eyes dark brown. Anterior width 2.00, posterior width 1.95, length 1.10, width/length ratio 1.82. Line joining posterior edges of ALE transects anterior quarter of AME. Posterior row recurved in front and behind. *Chelicerae.* Rastellum row of 9(8) spines; c. 12(12) smaller spines behind. Fang groove with 8(8) promarginal teeth and 31(35) small retromarginal/intermediate row teeth. *Labium.* Bulbous, length 2.05, width 1.61. Labio-sternal suture narrow, continuous. *Maxillae* c. 56(70) short rounded anteroventral cuspules partly masked by copious long orange setae. *Sternum.* Length 7.54, width 6.02. Sigilla distinct, ovate; anterior pair small, mid pair larger, posterior pair largest, each c. three times their own diameter from margin. *Legs:*

	palp	I	II	III	IV
femur	7.74	9.90	8.53	6.45	9.21
patella	4.02	5.59	5.40	4.30	5.39
tibia	4.21	6.17	5.28	3.19	7.25
metatarsus	—	5.10	4.85	4.18	6.27
tarsus	5.09	3.23	2.95	2.58	2.84
total	21.06	29.99	27.01	20.70	30.96

Leg formula: 4 1 2 3.

Scopula. Dense, dark grey in colour. Complete v cover on palpal tarsi and tarsi I and II, three-quarters cover on metatarsi I, half cover on metatarsi II, weak remnants on tarsi III and IV. *Trichobothria.* Palp: tarsi 15, tibia pd 8, rd 8. Leg I: tarsi 20, metatarsi 24, tibia pd 13, rd 10. Leg II: tarsi 20, metatarsi 24, tibia pd 10, rd 11. Leg III: tarsi 17, metatarsi 17, tibia pd 10, rd 12. Leg IV: tarsi 18, metatarsi 21, tibia pd 10, rd 10. *Leg spination.* Palp: tarsi pv 2 proximal, rv 01000; tibia pv 0122, v 0111. Leg I: metatarsi v 0110003; tibia v 01111113. Leg II: metatarsi v 6 scattered; tibia v 011111. Leg III: tarsi v 10 in distal group; metatarsi v 9 scattered, pd 011110, rd 0021210; tibia pd 01120, rd 01110; patella pd 12. Leg IV: tarsi v 13 scattered; metatarsi v 11 scattered. *Abdomen.* Dorsum with uniform cover of dark brown bristles extending onto venter, reduced in size over underlying small dark brown bristles. *Genitalia.* Sclerous lip of epigynum straight.

Taxonomic note: The unusual leg formula of male holotype is the same taken from both right and left limbs. The holotype is the only male specimen known. The male leg formula is inconsistent with that of the female allotype and all other known *Misgolas* spp. with the exception of males of *M.*

andrewsi (Hogg) from South Australia (Main, 1985) and *M. montanus* (Rainbow & Pulleine, 1918) from Jenolan Caves, N.S.W., 1 4 2 3 and 1–4 2 3 respectively.

Remarks. The species may be confused with *M. watsonorum* n.sp. For males the species are separable by reference to the digitate RTA and presence of a small d second embolic apophysis.

Etymology. The species is named in recognition of Colonel Michael and Mrs Janice Crawford, residents of the type locality.

Distribution and natural history (Figs 13J,K 24C) This species is known only from the type locality. Common in gardens, the largest burrows readily identified amongst garden mulch; entrance up to 2 cm diameter; lip attached by silk to leaves and forest debris such that entrance is supported about a centimetre above ground level (Fig. 13K). Below ground level the burrow lined with fragile silken tube to depth of 20 cm. Facet of courting behaviour in the wild is photographed (Fig. 13J).

Misgolas watsonorum n.sp.

Figs 14A–I, 24C

Type material. HOLOTYPE ♂, AM KS22419, Cape Hawke nr. Forster, 21 Carmona Drive (32°12'59"S 152°33'02"E), Ken Watson, 10 Jan. 1990, in pool. ALLOTYPE ♀, AM KS92877, excavated from front lawn 29 Jan. 2006, GW, other details same as holotype. PARATYPE ♀, AM KS4517, Cape Hawke nr. Forster (32°11'S 152°31'E), 15 Jan. 1980, Mr Paton.

Diagnosis. Medium (male carapace length, c. 6.75) to large (female carapace length, c. 12.85 maximum) brown spiders; retrodorsal surface of metatarsi IV without spines (Fig. 14E,G); venter with moderately dense brown pattern most dense adjacent to PMS (Fig. 14D,H). All femora dark brown (Fig. 14F,G), distal limb segments, including patella, much paler (Figs 14E–G). In male: palpal bulb with retrolateral embolic flange with 4 major folds, c. 2–3 minor folds; embolus with subdistal prolateral apophysis proximally pointed, thorn-like; secondary apophysis absent (Fig. 14B,C). Palpal tibia as figured (Fig. 14A); retrolateral tibial apophysis swollen, not digitate.

Description

Male holotype (Figs 14A–E). *Size.* Carapace length 6.75, width 5.15. Abdomen length 7.74, width 4.54. *Colour.* In alcohol carapace, chelicerae and proximal limb segments up to and including femora dark brown; distal segments and v surfaces of prosoma light tan. Dark brown smudges on some lateral limb surfaces. Abdomen dorsum dark brown bearing 5 pallid transverse chevrons. Venter with moderately dense dark brown pattern most dense immediately adjacent to PMS (Fig. 14D). Spinneret v surface brown, d surface pallid. *Carapace.* Edge with fringe of black bristles encroaching onto posterior third of post foveal surface. Line of 11 (some removed) weak median bristles on caput arch; 8 bristles between PME, 12 on clypeus; weakly chitinous pleuron

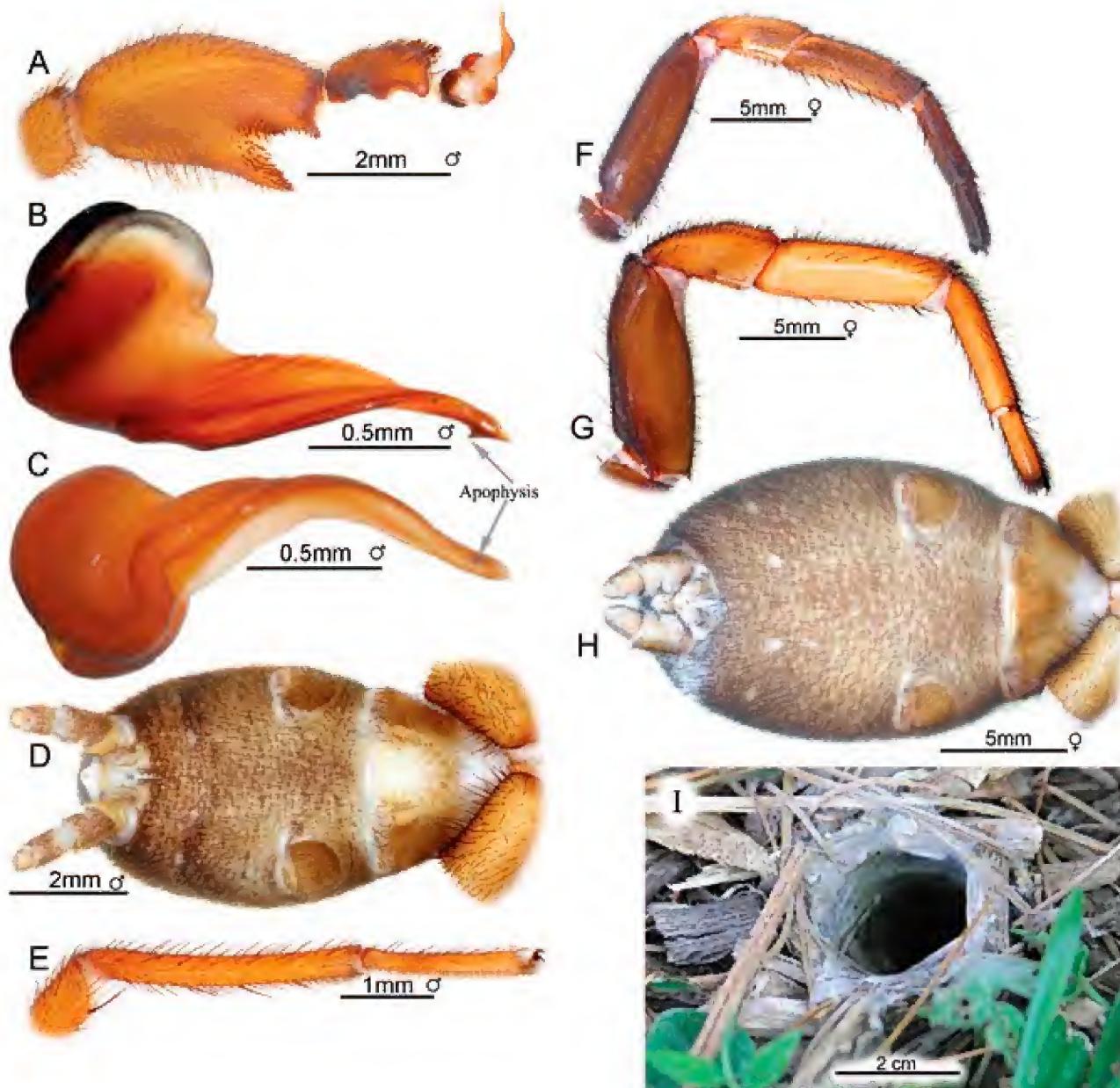


Fig. 14. *Misgolas watsonorum* n.sp. A–E ♂, holotype AM KS22419: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), venter. (E), right tarsus and metatarsus IV retrolateral. F–H ♀, allotype AM KS92877: (F), right leg I retrolateral. (G), right leg IV retrolateral. (H), venter. (I), burrow entrance.

membrane below clypeus without setae. Fovea width 1.10, straight, recurved edges, posterior wall centrally divided by pitted intrusion. *Eyes*. Raised on mound. Area immediately adjacent to eyes black. Anterior width 1.08, posterior width 0.95, length 0.59, width/length ratio 1.85. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae*. Rastellum row of 5(5) spines; c. 6(8) smaller spines behind. Intercheliceral tumescence small, pallid, indistinct, with few setae. Fang groove with 7(7) promarginal teeth & 8(9) smaller retromarginal/intermediate row teeth. *Labium*. Broad, bulbous, length 0.59, width 0.92. Labio-sternal suture broad, continuous. *Maxillae* c. 35(32) anteroental pointed, cigar shaped cuspules, none terminated by a hair. *Sternum*. Length 3.50, width 2.58. Sigilla all small, round: Anterior pair marginal, mid pair sub marginal, posterior pair c. 1.5 diameters from margin.

Legs. Tibia I with distal bifid apophysis; processes reduced, spines not prominently elevated, distal process with 2(2) attenuate spines; proximal process with 1(2) long curvilinear spine(s) appearing as a megaspine. Tarsi and metatarsi I & II markedly reflexed.

	palp	I	II	III	IV
femur	3.87	6.00	6.07	4.67	6.51
patella	1.72	3.19	2.82	2.27	2.89
tibia	3.50	5.34	4.48	2.89	5.77
metatarsus	-	5.22	4.42	3.87	5.59
tarsus	1.47	3.13	2.82	2.58	3.13
total	10.56	22.88	20.61	16.28	23.89

Palp (Fig. 14A). Many long, anteriorly inclined, mucronate, skewer shaped spines on distal half of cymbium d surface. RTA swollen, d and rd surfaces covered with long pointed

spines which continue around rv edge of tibial excavation becoming shorter and continuing to end of DTA. TEM, with posteroventral weak TET, contiguous with RTA. *Bulb.* (Fig. 14B,C) Narrow embolic rl flange with 4 major and c. 2–3 minor folds, margin twisted under short embolus. Embolus with proximally pointed thorn-like subdistal pl apophysis. *Scopula.* Complete on all tarsi, incomplete on all metatarsi. *Trichobothria.* Palp: tarsi 9, tibia pd 5, rd 4. Leg I: tarsi 12, metatarsi 15, tibia pd 7, rd 6. Leg II: tarsi 12, metatarsi 13, tibia pd 7, rd 7. Leg III: tarsi 10, metatarsi 12, tibia pd 7, rd 8. Leg IV: tarsi 11, metatarsi 12, tibia pd 8, rd 7. *Leg spination.* Spines absent on all tarsi. Leg I: metatarsi v 011000; tibia v 01113. Leg II: metatarsi v 012100; tibia v 01112. Leg III: metatarsi v 0102, d 02223; tibia v 0112, pl 010, rl 0110; patella pd 5. Leg IV: metatarsi v 8; tibia v 5. *Abdomen.* Dorsum with dense cover of short brown bristles. Venter with cover of weaker setae.

Female allotype (Fig. 14F–H). *Size.* Carapace length 12.85, width 9.33. Abdomen length 18.82, width 11.76. *Colour.* In alcohol chelicerae dark brown, carapace and all femora brown, distal limb segments light tan. Abdomen dorsum with 6 faint pallid transverse chevrons. Venter entirely brown. Palp and legs I and II with bilateral dark brown smudges most apparent on patella and tibia (Fig. 14F). When dry carapace bedecked with golden hirsute sheen, abundant on caput. *Carapace.* Edge fringed with pale brown hairs which encroach onto area between posterior striae. Striae deeply indented. Line of c. 16 (c. 7 removed) small median bristles on caput arch; 16 bristles between PME; c. 35 bristles on clypeus; 3 small dark bristles on weakly chitinous pleuron membrane below clypeus. Fovea width 3.07, straight, posterior wall centrally divided by 2–3 small pitted intrusions. *Eyes.* Placed on low mound. Area immediately adjacent to eyes dark brown, PME excepted. Anterior width 1.74, posterior width 1.69, length 0.88, width/length ratio 1.97. Line joining posterior edges of ALE transects anterior fifth of AME. Posterior row straight in front, recurved behind. *Chelicerae.* Rastellum disordered front row of 10(12) spines; c. 14(11) smaller spines behind. Fang groove with 9(9) promarginal teeth and 32(32) small retromarginal/intermediate row teeth. *Labium.* Bulbous, length 1.66, width 2.17. Labio-sternal suture continuous, narrow centrally. *Maxillae.* An estimated 50(50) short, rounded, anteroventral cuspules masked from view by copious long setae. *Sternum.* Length 6.96, width 5.49. Sigilla anterior pair round, its own width from margin; mid pair larger ovate, one and a half times its length from margin; posterior pair largest ovate, twice its length from margin. *Legs:*

	palp	I	II	III	IV
femur	6.96	9.02	7.84	6.08	8.33
patella	3.82	5.39	5.09	4.11	5.10
tibia	4.12	5.68	4.79	4.70	6.96
metatarsus	—	4.70	4.36	3.81	5.88
tarsus	4.41	2.94	2.58	2.39	2.76
total	19.31	27.73	24.66	21.09	29.03

Scopula. Dense, dark grey in colour. Dense v cover on palpal tarsi and tarsi I and II with some thinning along narrow v band. Metatarsi I and II with dense v cover with exception of v band running length of segments broadening proximally. Weak remnants on tarsi III and IV. *Trichobothria.* Palp: tarsi

15, tibia pd 9, rd 9. Leg I: tarsi 18, metatarsi 22, tibia pd 10, rd 10. Leg II: tarsi 19, metatarsi 20, tibia pd 10, rd 9. Leg III: tarsi 17, metatarsi 17, tibia pd 9, rd 10. Leg IV: tarsi 20, metatarsi 20, tibia pd 9, rd 10. *Leg spination.* Palp: tarsi rv 3 proximal, pl 4 proximal; tibia pl 6 scattered, rv 02100. Leg I: metatarsi v 012103; tibia v 011213. Leg II: tarsi v 2 distal; metatarsi v 10 scattered; tibia v 011121. Leg III: tarsi v 10 scattered on distal half; metatarsi v 9 scattered on distal half, pl 0110000, d 0121220; tibia pd 011111, rd 011110; patella pd 12. Leg IV: tarsi v 22 scattered; metatarsi v 9 scattered. *Abdomen.* Dorsum with uniform sparse cover of small dark bristles over underlying fine setae. Venter with dense uniform cover of small dark bristles over underlying fine setae as on dorsum. *Genitalia.* Epigynum lip weakly sclerous, gently recurved.

Remarks. The species may be confused with *M. crawfordorum* n.sp. For males the species are separable by reference to the non-digitate RTA and absence of a small d second embolic apophysis.

Etymology. The species is named in recognition of Mr Ken Watson, an enthusiastic science teacher, and Mrs Sue Watson, both collectors and residents of the type locality.

Distribution and natural history. (Fig. 24C) This species is known only from the type locality and is sympatric with *M. tarnawskiae* n.sp. The burrow entrance favours shaded areas and is commonly found in lawns. The lip is about 10° oblique to the level ground and raised c. 1 cm above the ground resting on grass and leaves (Fig. 14I). The burrow structure is similar to that of *M. crawfordorum*.

Misgolas raveni n.sp.

Figs 15A–G, 24D

Type material. HOLOTYPE ♂, AM KS50007, Berkeley Vale (33°20'S 151°26'E), 25 May 1997, Lyn Abra. PARATYPES ♂ ♂: AM KS44405 (right palp missing), Gosford (33°26'S 151°20'E), 13 June 1996, Lyn Abra; AM KS48635 (abdomen damaged), Berkeley Vale (33°20'S 151°26'E), 1 Oct. 1996, Lyn Abra.

Diagnosis. In male: medium sized dark brown spiders, carapace length c. 5.8–6.5; retrodorsal surface of metatarsi IV without spines (Fig. 15F). Venter entirely dark brown (Fig. 15G). Spines absent on all tarsi. Bifid apophysis with long linear/curvilinear spines on reduced processes (Fig. 15E). Palpal bulb (Fig. 15B,C) retrolateral embolic flange with 5 long folds; embolus tip with sharp right angle prolateral bend; embolic apophysis absent. Conformation of palp as figured (Fig. 15A). Distal tibial apophysis absent, cymbium with light brown dorsal bristles. Female not known.

Description

Male holotype (Fig. 15A–G). *Size.* Carapace length 6.17, width 4.41. Abdomen length 5.49, width 3.63. *Colour.* In alcohol chelicerae, carapace, d abdomen and all femora dark brown; remaining distal limb segments light tan, some lateral surfaces with pronounced elongate dark smudges (Fig. 15D). Pallid hairs on carapace and proximal limb segments.

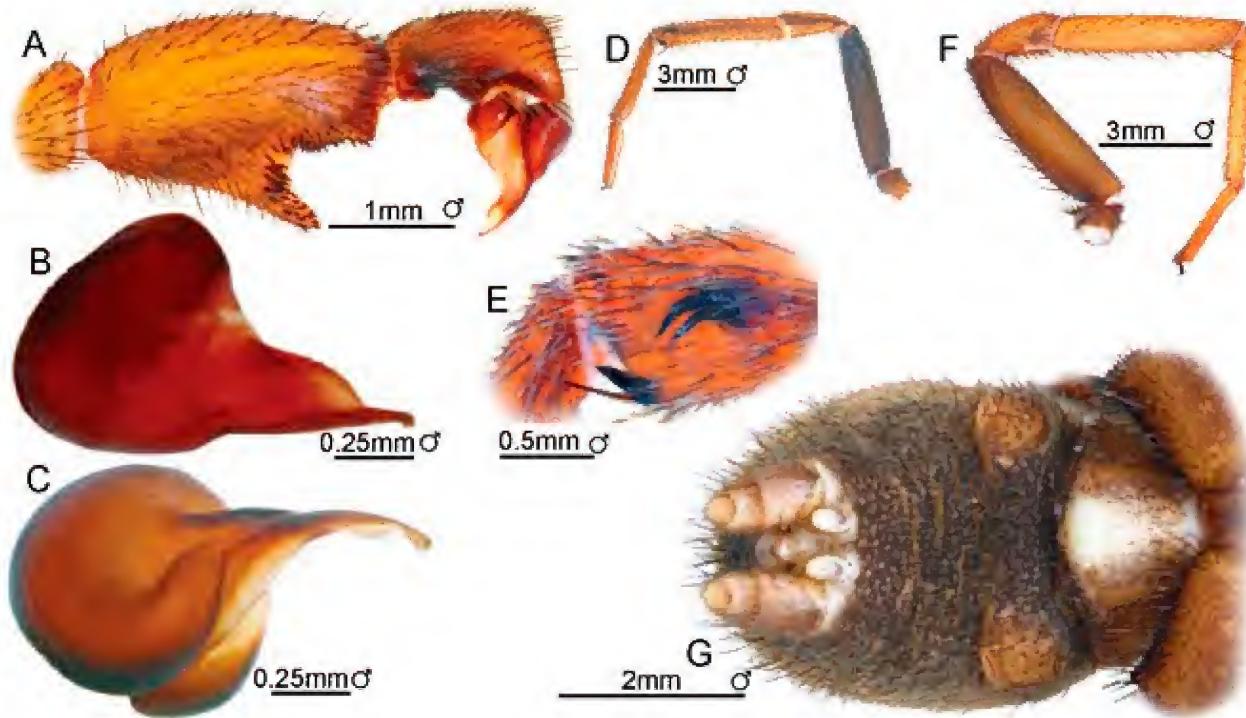


Fig. 15. *Misgolas raveni* n.sp. A–G ♂, holotype AM KS50007: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), right leg I prolateral. (E), right bifid apophysis prolateral. (F), right leg IV retrolateral. (G), venter.

Abdomen dorsum with 5 pale transverse chevrons. Venter entirely dark brown (Fig. 15G). *Carapace*. Edge fringed with black bristles which encroach onto posterior two-thirds of post foveal surface. Line of 5 median bristles anteriorly inclined on caput arch. Group of 8 bristles on clypeus; group of smaller setae on weakly chitinous area extending onto pleuron membrane below clypeus. Fovea width 1.08, slightly recurved, edges recurved, pitted intrusion absent from posterior wall. *Eyes*. Raised on mound, area immediately adjacent to eyes black excepting PME; anterior width 1.02, posterior width 0.92, length 0.56, width/length ratio 1.82. Line joining posterior edges of ALE transects anterior third of AME. Posterior row procurved in front, recurved behind. *Chelicerae*. Rastellum row of 5(5) spines; 1(1) spine behind. Intercheliceral tumescence small. Fang groove with 6(6) promarginal teeth, 7(8) smaller retromarginal/intermediate row teeth. *Labium*. Short, broad, not bulbous. Length 0.33, width 1.00. Labio-sternal suture broad, undivided. *Maxillae* c. 28(19) small assorted blunt and acutely pointed anteroventral cuspules. *Sternum*. Length 3.82, width 2.45. Sigilla all more or less round; posterior pair largest, one diameter from margin; others submarginal. *Legs*. Tibia I with distal bifid apophysis (Fig. 15E); processes reduced, spines not prominently elevated, distal process with 1(1) attenuate symmetrical spine appearing as a megaspine, proximal process with 2(2) long curvilinear spines.

Palp (Fig. 15A). Cymbium with c. 56 long, attenuate, light brown bristles, anteriorly inclined, distributed over distal third of d surface; many long fuscous hairs project forward from cymbium lobes. RTA inclined slightly downwards, base swollen, covered with long pointed d and rd spines which continue and are widespread along swollen rv edge of tibial excavation. DTA absent. TEM large, squat, pallid, contiguous with RTA, pl surface with weak TET. *Bulb*. (Fig. 15B,C) Embolic rl flange with 5 long folds, margin strongly convexly curved. Embolus short, apophysis absent, tip with sharp right angle pl bend. *Scopula*. Complete on all tarsi, sparse on tarsi III and IV, sparse on distal fifth of all metatarsi. *Trichobothria*. Palp: tarsi 9, tibia pd 5, rd 5; Leg I: tarsi 13, metatarsi 13, tibia pd 6, rd 6; Leg II: tarsi 11, metatarsi 13, tibia pd 7, rd 7; Leg III: tarsi 11, metatarsi 9, tibia pd 6, rd 6; Leg IV: tarsi 11, metatarsi 13, tibia pd 6, rd 6. *Leg spination*. Absent on all tarsi. Leg I: metatarsi v 010; tibia v 01113. Leg II: metatarsi v 01102; tibia v 0112; Leg III: metatarsi v 012, tibia v 01112, d 022, patella pd 01110. Leg IV: metatarsi v 0111, tibia v 01112. *Abdomen*. Dorsum covered with long dark bristles, decreasing in size laterally, covering venter. Abdomen entirely covered with underlying fine hairs.

Etymology. The species is named in recognition of arachnologist, Dr Robert Raven, at the Queensland Museum, Brisbane, Australia.

Distribution and natural history. (Fig. 24D) This spider is known only from the Gosford-Berkley Vale locality of the NSW Central Coast. The burrow is unknown.

	palp	I	II	III	IV
femur	2.84	5.76	5.15	3.87	5.66
patella	1.46	2.82	2.58	2.08	2.64
tibia	2.37	4.67	3.99	2.33	5.03
metatarsus	—	3.62	3.38	3.07	4.61
tarsus	1.38	2.27	2.21	2.08	2.33
total	8.05	19.14	17.31	13.43	20.27

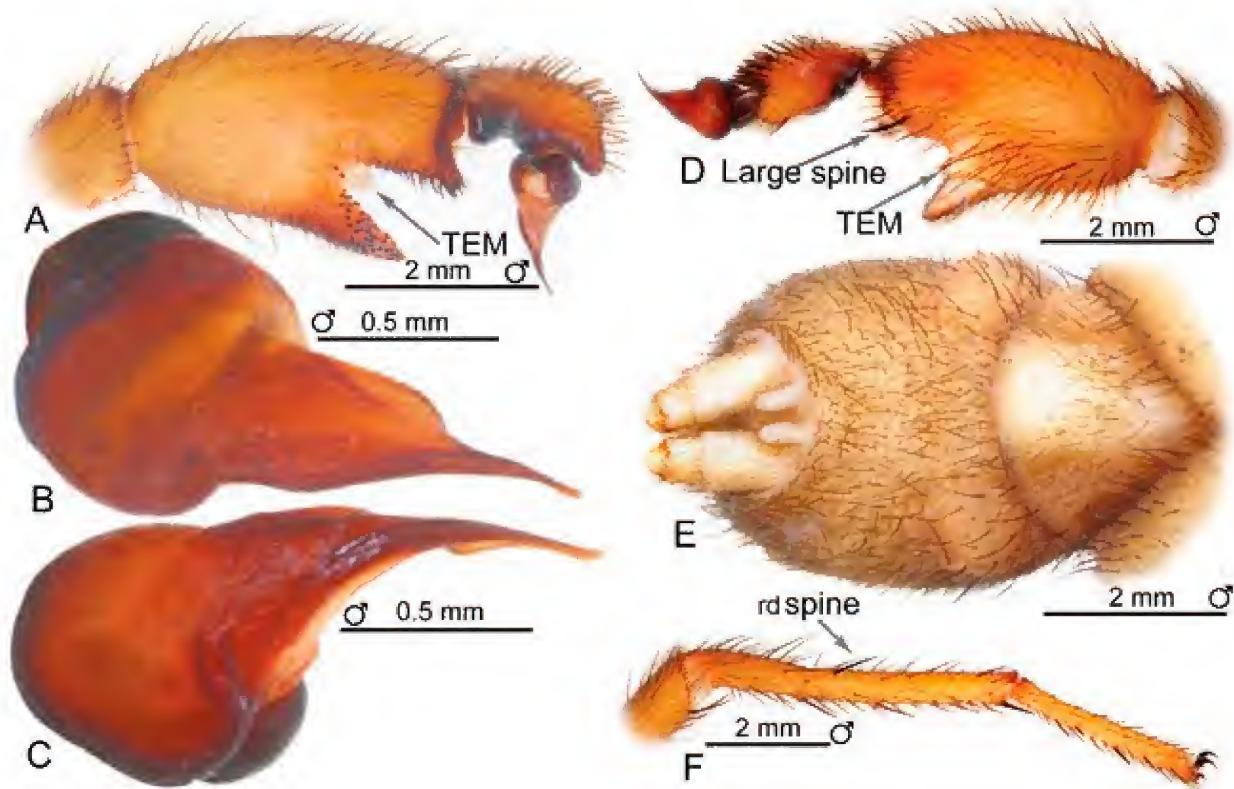


Fig. 16. *Misgolas fredcoylei* n.sp. A–C, E, F ♂, holotype AM KS36704: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. D ♂, paratype AM KS38604: (D), right palp prolateral. (E), venter. (F), right tarsus/metatarsus IV retrolateral.

Misgolas fredcoylei n.sp.

Figs 16A–F, 24D

Type material. HOLOTYPE ♂, AM KS36704, Chichester State Forest (RM), Berrico Road, approximately 2 km north of intersection with Kunungra Road (32°05'S 151°45'E), 1,030 m, 4 Feb.–9 Apr. 1993, pit fall trap site 35BR, M. Gray, G. Cassis. PARATYPES ♂ ♂, AM KS38604, Chichester State Forest (RM), Berrico Road, 100 m north of trig. tower (32°06'22"S 151°45'51"E), 940 m, 4 Feb.–9 Apr. 1993, pit fall trap site 35BM, M. Gray, G. Cassis. AM KS86215 & AM KS86219, data as for holotype.

Other material examined. Adult ♀ and juvenile, AM KS38605, data as for paratype AM KS38604.

Diagnosis. In male: medium sized brown spiders, carapace length c. 6.5–7.5; retrodorsal surface of metatarsi IV with spines, at least one midway (Fig. 16F); venter entirely pallid (Fig. 16E). Palpal bulb (Fig. 16B,C) with retrolateral embolic flange with c. 12 fine folds; embolus short, apophysis absent. Conformation of palp as figured (Fig. 16A,D); cymbium with long blunt stick-like spines inclined c. 45° forward, retrolateral tibial apophysis not basally bent downwards, distal tibial apophysis small; large black subdistal spine projecting from proventral surface of tibial excavation (Fig. 16D). Female not known.

Description

Male holotype (Fig. 16A–F). **Size.** Carapace length 6.51, width 5.34. Abdomen length 5.46, width 3.43. **Colour.** In alcohol carapace, legs, palps & chelicerae light tan; dark brown smudges absent from lateral limb surfaces. Few sparse pallid hairs on caput, absent on limbs. Abdomen dorsum light brown mottled with dark brown; “chevrons” absent. Venter entirely pallid. **Carapace.** Edge fringed with black bristles some extending onto post foveal surface; some smaller bristles on remaining caput area. Line of 6 bristles (some rubbed off) on caput arch. Group of three bristles between PME; group of 9 on clypeus. Area extending onto pleuron membrane below clypeus narrow without setae. Fovea width 0.99, straight, posterior wall not pitted. **Eyes.** Raised on mound. Areas between adjacent eyes black. Widths of anterior and posterior rows c. equal, 1.08 and 1.07 respectively. Eye group length 0.61, width/length ratio 1.75. Line joining posterior edge of ALE transects anterior fifth of AME. Posterior row straight in front, recurved behind. **Chelicerae.** Rastellum first row 6(6) strong spines; c. 11(8) behind and extending along pd cheliceral edge. Intercheliceral tumescence elongate, faint, not distinct. Fang groove with 10(7) promarginal teeth and 9(10) smaller retromarginal/intermediate row teeth. **Labium.** Bulbous, length 0.61, width 1.13. Labio-sternal suture undivided, broad narrowing laterally. **Maxillae** c. 8(13) stick-like anteroventral cuspules. **Sternum.** Length 3.25, width 2.45. Two pairs small round sigilla

separated from margin by their own diameter; posterior third pair absent (present in paratypes). *Legs.* Tibia I with distal bifid apophysis; distal process with 2(2) short blunt spines, proximal process with 3(3) short pointed spines.

	palp	I	II	III	IV
femur	3.50	6.38	6.01	5.09	6.69
patella	1.66	3.01	2.89	2.39	3.00
tibia	3.44	4.67	4.61	3.25	5.65
metatarsus	—	4.55	4.30	4.17	5.77
tarsus	1.60	2.82	2.70	2.64	3.19
total	10.20	21.43	20.51	17.54	24.30

Palp (Fig. 16A). Cymbium with c. 38 long, blunt, stick-like spines, each terminated by a posteriorly positioned point, anteriorly inclined c. 45° to cymbium axis and distributed over distal third of d surface and distal two-thirds of pd surface. RTA broad without swellings, d and rd surface covered with c. 45 squat pointed spines; proximal half of rv edge of tibial excavation with c. 30 similar spines; distal half of rv edge with c. 16 longer spines extending onto small straight DTA. TEM prominent, pallid, adjacent to RTA. TET not seen (discernible on paratype AM KS38604). Large black subdistal spine (fractured on right palp) projecting from pv surface of tibial excavation (Fig. 16D). *Bulb.* (Fig. 16B,C) Embolic rl flange with c. 10 fine folds, margin convexly curved, folding under short embolus; embolic apophysis absent. *Scopula.* Dense and complete on tarsi I and II, weak and incomplete on metatarsi I and II, absent on legs III and IV. *Trichobothria.* Palp: tarsi 7, tibia pd 5, rd 6. Leg I: tarsi 10, metatarsi 11, tibia pd 6, rd 5. Leg II: tarsi 10, metatarsi 10, tibia pd 6, rd 7. Leg III: tarsi 10, metatarsi 11, tibia pd 6, rd 6. Leg IV: tarsi 11, metatarsi 13, tibia pd 6, rd 6. *Leg spination.* Leg I: tarsi v 1 subdistal, rv line of 4 adjacent scopula; metatarsi pv 0111, rv 0112; tibia v 0112. Leg II: tarsi pv 2 subdistal, rv line of 6 adjacent scopula; metatarsi pv 00111, rv 02132; tibia v 01112, pd 0110. Leg III: tarsi v 10 scattered, rl 01110; metatarsi v 15 scattered, d 002220; tibia v 00112, pl 0110, rl 0110; patella pd 7. Leg IV: (Fig. 16F) tarsi v 16 scattered; metatarsi v 10 scattered, rd 010; tibia v 00113. *Abdomen.* Dorsum with cover of long brown bristles. Hairs and short soft bristles on lateral surfaces. Longer weak bristles on venter.

Remarks. The female and juvenile specimens AM KS38605 referred to as "Other material examined" were collected from the same pitfall trap as paratype AM KS38604. Although these specimens are possibly the same species as the holotype they are not recognized as *M. fredcoylei* in this work as spination of metatarsi IV does not conform with that of the male types.

Etymology. The species is named in recognition of eminent arachnologist and teacher Frederick A. Coyle, Professor of Biology, Western Carolina University, USA.

Distribution and natural history (Fig. 24D). This spider is known only from the Chichester State Forest approximately 25 km South West of the town of Gloucester. The burrow is unknown.

Misgolas billsheari n.sp.

Figs 17A–J, 24D

Type material. HOLOTYPE ♂, AM KS86222, Chichester State Forest SF16, Lumeah Road, 1.7 km from Allyn Road (32°06'S 151°45'E), 970 m, 4 Feb.–9 Apr. 1993, pit fall trap site 36BG, M. Gray, G. Cassis. PARATYPES ♂ ♂, AM KS38602 (4 specimens), data as for holotype; AM KS38609, Chichester SF 16A, Bungari Rd, 1 km from Mt Allyn Rd (32°08'S 151°26'E), 4 Feb.–9 Apr. 1993, pit fall trap site 36BM, M. Gray, G. Cassis; AM KS38625, Chichester SF 16, Mt Allyn Rd. adjacent to Mt Allyn Forest Park, (900 m from junction of Mt Allyn Lookout Rd.) (32°07'S 151°25'E), 970 m, 4 Feb.–9 Apr. 1993, pit fall trap site 36BR, M. Gray, G. Cassis.

Diagnosis. In male: medium sized brown spiders, carapace length c. 6.0–6.6; retrodorsal surface of metatarsi IV with spines (Fig. 17J); venter pallid with short dark brown maculations concentrated in median band, most dense between posterior book lungs (Fig. 17D). Palpal bulb (Fig. 17B,C) with retrolateral embolic flange with 6 prominent and c. 3 minor folds, distal edge curved under embolus; embolic apophysis absent. Conformation of palp as figured (Fig. 17A); cymbium with c. 30 long attenuate spine projecting forward, retrolateral tibial apophysis basally bent downwards, distal tibial apophysis large.

Description

Male holotype (Figs 17A–J). *Size.* Carapace length 6.57, width 5.10. Abdomen length 6.08, width 3.23. *Colour.* In alcohol carapace, legs, palps and chelicerae mid-tan; anterior patellae with weak bilateral dark brown smudges. Pallid hairs absent from carapace and limbs. Abdomen dorsum dark brown with six pallid transverse chevrons (Fig. 17E). Venter pallid with short dark brown maculations most concentrated in longitudinal median band, most dense between posterior book lungs (Fig. 18D). *Carapace* (Fig. 17E). Edge fringed with black bristles for the most part in single orderly row, a few encroach onto post foveal surface; smaller bristles are associated with each stria and caput; row of 10 (some rubbed off) on caput arch. Group of 7 bristles between PME, 6 on clypeus. Fovea width 1.20, straight, edges recurved. Posterior wall not pitted. *Eyes.* Raised on mound, area adjacent to eyes black; anterior width 1.13, posterior width 1.10, length 0.67, width/length ratio 1.69. Line joining posterior edge of ALE bisects AME. Posterior row recurved in front and behind. *Chelicerae.* Rastellum row of 6(6) spines; 1(1) behind. Intercheliceral tumescence a small raised basal cant with sparse cover of brown prostrate setae and extending distally as narrow pallid area without setae. Fang groove with 8(8) promarginal teeth & 6(6) smaller retromarginal/intermediate row teeth. *Labium.* Bulbous, length 0.54, width 1.08. Labio-sternal suture broad, continuous. *Maxillae* c. 20(16) short, rounded, anteroventral cuspules. *Sternum.* Length 3.25, width 2.46. Sigilla all round, anterior pair small submarginal; mid pair larger, own diameter from margin; posterior pair largest, 1.5 diameters from margin. *Legs.* Tibia I with distal bifid apophysis, each process with 2 spines.

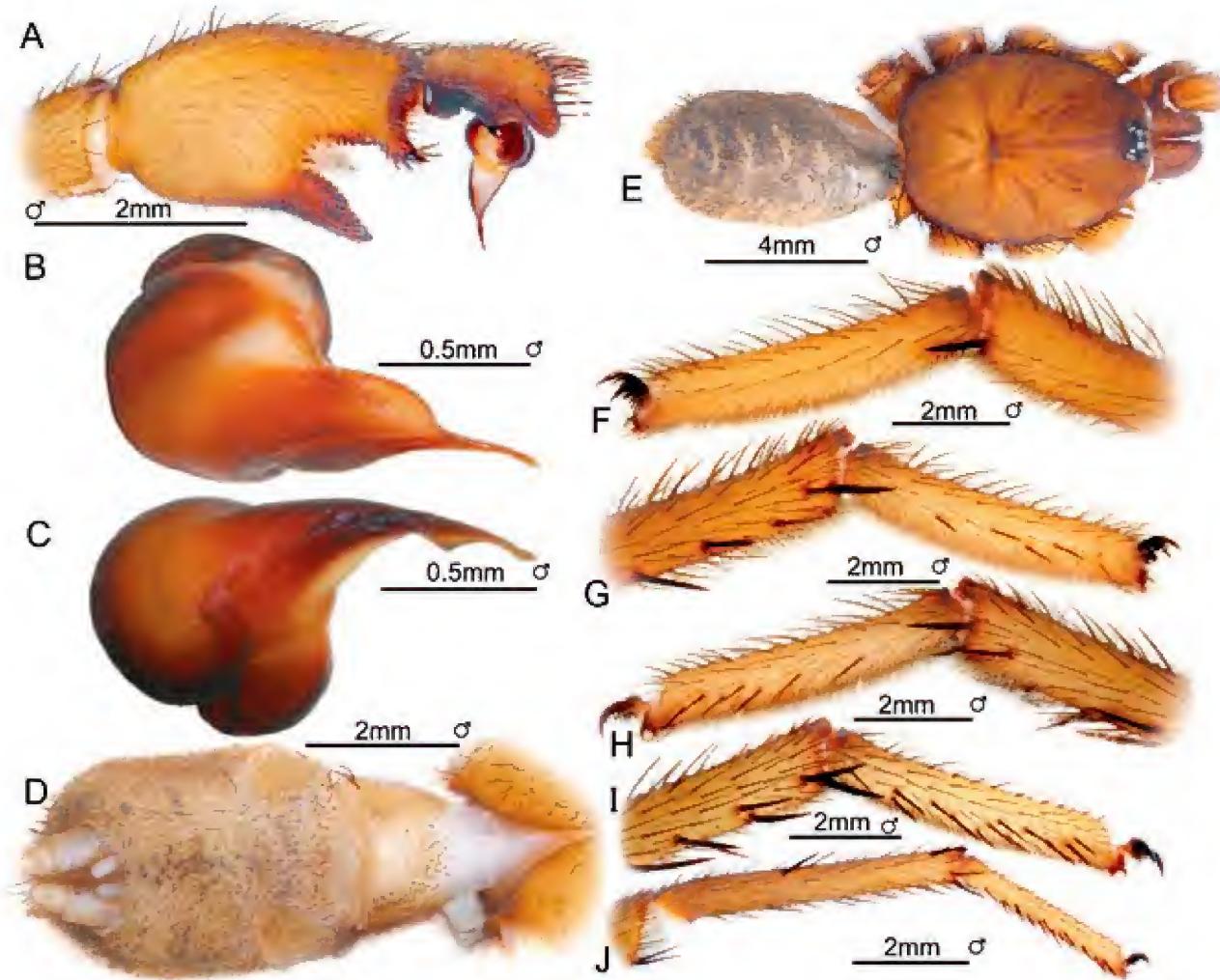


Fig. 17. *Misgolas billsheari* n.sp. A–J ♂, holotype AM KS86222: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), venter. (E), dorsum. (F,G), right tarsus/metatarsus joint I: F, prolateral; G, retrolateral. (H,I), right tarsus/metatarsus joint II: H, prolateral; I, retrolateral. (J), right tarsus and metatarsus IV retrolateral.

	palp	I	II	III	IV
femur	3.19	5.59	5.22	4.55	5.89
patella	1.72	2.95	2.76	2.27	2.95
tibia	3.01	4.11	3.87	2.88	5.59
metatarsus	—	4.17	3.87	3.68	5.28
tarsus	1.41	2.52	2.39	2.39	2.95
total	9.33	19.34	18.11	15.77	22.66

Palp (Fig. 17A). Cymbium with c. 30 long, attenuate spines projecting forward distributed over distal third of d surface; some long pallid hairs project forward from lobes. RTA basally bent downwards c. 30°, base swollen, d and rd surface covered with squat pointed spines which continue around tibial excavation and along rv edge; c. 24 longer attenuate spines suspended from short straight DTA. TEM prominent, conical, pallid, adjacent to RTA. TET discernible on pl surface of TEM. **Bulb**. (Fig. 17B,C) Embolic rl flange with 6 prominent plus 3 minor folds, margin distally convexly curved under embolus as if twisted; embolus straight, apophysis absent. **Scopula**. Complete on tarsi I, weak and complete on tarsi II, weak and incomplete on metatarsi I and II, absent on legs III and IV. **Trichobothria**. Palp: tarsi

8, tibia pd 6, rd 6. Leg I: tarsi 11, metatarsi 12, tibia pd 7, rd 7. Leg II: tarsi 11, metatarsi 11, tibia pd 7, rd 7. Leg III: tarsi 13, metatarsi 10, tibia pd 6, rd 7. Leg IV: tarsi 14, metatarsi 14, tibia pd 8, rd 7. **Leg spination**. Leg I (Fig. 17F,G): tarsi rv line of 5 adjacent scopula; metatarsi pv 01, rv 00011111; tibia v 8, pd 01010. Leg II (Fig. 17H,I): tarsi pv line of 6 & rv line of 13 both adjacent scopula; metatarsi v 12; tibia v 8, pd 01010. Leg III: tarsi v c. 25; metatarsi v c. 13, d 002220; tibia v 0222, pl 0110, rl 0110; patella pd 5. Leg IV (Fig. 17J): tarsi v c. 27; metatarsi v c. 23, rd 0010010; tibia v 0222, rd 001010. **Abdomen**. Hairs absent. Dorsum with long erect brown bristles and understory small posteriorly inclined bristles. Venter with cover of light brown erect bristles.

Etymology. The species is named in recognition of William A. Shear, gifted teacher and Charles Patterson Distinguished Professor of Biology, Hampden-Sydney College, Virginia, USA.

Distribution and natural history (Fig. 24D). This spider is known only from the Chichester State Forest approximately 25 km South West of the town of Gloucester. The burrow is unknown.

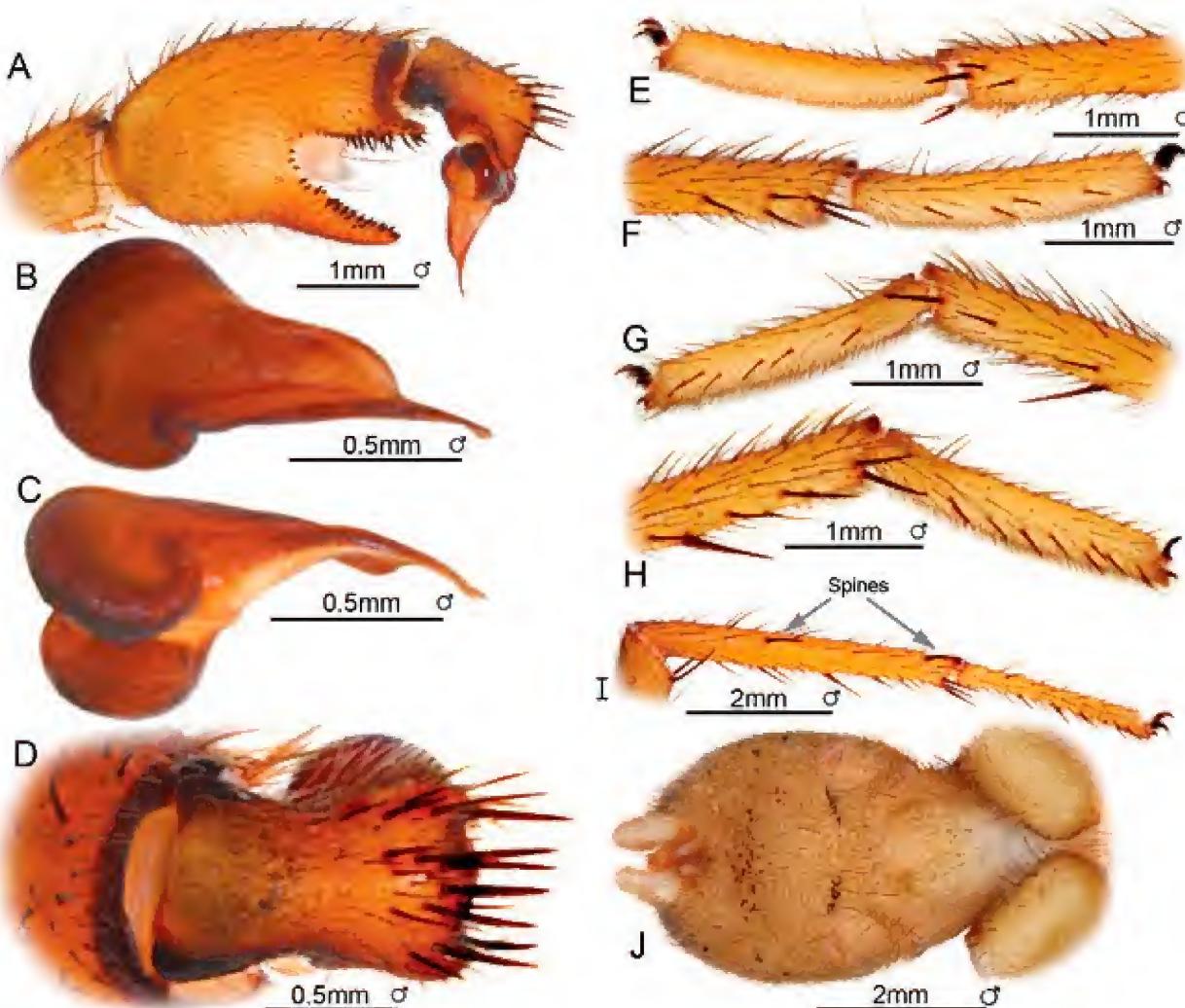


Fig. 18. *Misgolas baehrae* n.sp. A–I ♂, holotype AM KS48642; J ♂, paratype AM KS86224: (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (D), right cymbium dorsal. (E, F), right tarsus/metatarsus joint I: E, prolateral; F, retrolateral. (G, H), right tarsus/metatarsus joint II: G, prolateral; H, retrolateral. (I), right tarsus and metatarsus IV retrolateral. (J), venter.

Misgolas baehrae n.sp.

Figs 18A–J, 24D

Type material. HOLOTYPE ♂, AM KS48642, Chichester State Forest 300, Karuah River Crossing, Karuah River Road (32°06'S 151°42'E), 4 Feb.–9 Apr. 1993, pit fall trap site 35AG, M. Gray, G. Cassis. PARATYPES ♂ ♂, AM KS86224, Chichester SF, 1.8 km north of ford on Karuah River Road (32°04'S 151°43'E), 4 Feb.–9 Apr. 1993, pit fall trap site 35AM, M. Gray, G. Cassis. AM KS86225, Chichester SF (NA), on Mountain Road, 0.2 km south of junction with Kunungra Road (32°08'S 151°44'E), 4 Feb.–9 Apr. 1993, pit fall trap site 35CR, M. Gray, G. Cassis. AM KS86226, Chichester SF (RM), 100 m north of trig. tower on Berrico Road (32°09'S 151°28'E), 4 Feb.–9 Apr. 1993, pit fall trap site 36CR, M. Gray, G. Cassis.

Other material examined. The specimens AM KS36701 (32°08'S 151°26'E), AM KS36703 (32°09'S 151°27'E), AM KS36711 (32°09'S 151°29'E), AM KS36712 (32°09'S 151°29'E) and AM KS38601 (32°10'S 151°28'E) collected c.

25 km west of type locality. Specimen AM KS86213 (Bulga State Forest, Homewoods Rd, 2.8 km west of Knodingbul Rd [31°37'S 152°07'E], 690 m, 4 Feb.–9 Apr. 1993, pit fall trap site 57CR, M. Gray, G. Cassis) collected c. 90 km Nor Nor West of type locality.

Diagnosis. In male: small sized tan spiders, carapace length c. 4.2–5.1; retrodorsal surface of metatarsi IV usually with two spines (Fig. 18I); venter pallid with dark brown pattern as figured (Fig. 18J). Palpal bulb retrolateral embolic flange with c. 6–7 fine folds; embolus straight, apophysis absent (Fig. 18B,C). Distal half of retroventral edge of tibial excavation to end of distal tibial apophysis suspends continuous brush of longer spines. Distal tibial apophysis straight horizontal. Cymbium bearing c. 14–20 long and attenuate spines projecting forward, almost horizontal (Fig. 18A,D). Conformation of palp as figured (Fig. 18A). Female not known.

Description

Male holotype (Fig. 18A–J). **Size.** Carapace length 5.03, width 3.97. Abdomen length 4.61, width 2.64. **Colour.** In

alcohol all limbs and carapace medium tan; faint bilateral dark brown smudges on tibia, patella and femur of anterior limbs. Abdomen dorsum pallid densely mottled with dark brown; "chevrons" absent. Venter grey, apparently deteriorated, pattern not seen (discernible on paratype AM KS86224 as figured [Fig. 18J]). *Carapace*. Edge fringed with black bristles some extending onto post foveal surface. Line of c. 10 small bristles (some rubbed off) on caput arch. Group of four bristles between PME; group of 4 bristles on clypeus. Area extending onto pleuron below clypeus without setae. Fovea width 0.83, straight, deep, edges recurved, posterior wall centrally divided by pitted intrusion. *Eyes*. Raised on mound. Posterior half of ocular area adjacent to eyes black. Widths of anterior and posterior rows c. equal, 0.90 & 0.89 respectively. Eye group length 0.58, width/length ratio 1.55. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, procurved behind. *Chelicerae*. Rastellum row of 6(5) spines; c. 5(5) smaller spines behind. Intercheliceral tumescence small, pallid. Fang groove with 7(7) promarginal teeth and 7(7) smaller retromarginal/intermediate row teeth. *Labium*. Bulbous, length 0.51, width 0.87. Labio-sternal suture broad, undivided. *Maxillae* c. 20(17) blunt cigar shaped anteroental cuspules. *Sternum*. Length 2.65, width 1.98. Sigilla all round; anterior pairs close to margin, posterior pair half diameter from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) short pointed spines, proximal process with 2(2) short blunt spines.

	palp	I	II	III	IV
femur	2.64	4.73	4.24	3.68	4.85
patella	1.18	2.27	2.15	1.78	2.33
tibia	2.61	3.44	3.19	2.27	4.61
metatarsus	—	3.62	3.13	2.94	4.42
tarsus	1.18	2.27	2.09	1.90	2.45
total	7.61	16.33	14.80	12.57	18.66

Palp (Fig. 18A). Cymbium with c. 7(8) large and 7(8) smaller attenuate spines projecting forward from anterior half of d surface. RTA covered with short pointed d spines which continue around and onto rv edge of tibial excavation; c. midway on rv edge spines become longer and continue to end of straight horizontal DTA forming an extended brush. TEM prominent, pallid, adjacent to RTA, TET on pl surface. *Bulb*. (Fig. 18B,C) Embolic rl flange with c. 7 folds, margin distally sharply convexly curved under embolus as if twisted. Embolus straight, apophysis absent. *Scopula*. Complete on tarsi I, weak and complete on tarsi II, weak & incomplete on metatarsi I and II, absent on legs III and IV. *Trichobothria*. Palp: tarsi 7, tibia pd 4, rd 5. Leg I: tarsi 10, metatarsi 9, tibia pd 6, rd 6. Leg II: tarsi 9, metatarsi 9, tibia pd 5, rd 5. Leg III: tarsi 9, metatarsi 6, tibia pd 5, rd 5. Leg IV: tarsi 10, metatarsi 11, tibia pd 6, rd 6. *Leg spination*. Leg I (Fig. 18E,F): tarsi rv line of 4 small spines adjacent scopula; metatarsi rv distal group of 3, rv distal group of 5; tibia v 0122. Leg II (Fig. 18G,H): tarsi bilateral rows small spines adjacent scopula rv 6, rv 9; metatarsi v 14; tibia v 0123. Leg III: tarsi v 18; metatarsi v 11, d 02220; tibia v 0113, pl 0110, rl 00110; patella pd 3. Leg IV (Fig. 18I): tarsi v 18; metatarsi v 14, rd 0010010; tibia v 6, rd 01010. *Abdomen*. Dorsum with c. 27 long brown bristles in a broad median band; smaller bristles evenly scattered with underlying small bristles and hairs. Venter with cover of small bristles.

Etymology. The species is named in recognition of arachnologist, Dr Barbara Baehr, at the Queensland Museum, Brisbane, Australia.

Distribution and natural history (Fig. 24D). This spider is known only from the Chichester and Bulga State Forests, localities c. 90 km apart. The burrow is unknown.

Misgolas macei n.sp.

Figs 19A–F, 24D

Type material. HOLOTYPE ♂, AM KS38643, Bulga State Forest, Grey Gums Forest Road, 2.1 km from Doyles River Road (31°33'15"S 152°14'55"E), 560 m, 4 Feb.–9 Apr. 1993, pit fall trap site 57AG, M. Gray, G. Cassis.

Diagnosis. In male: medium sized dark tan spider, carapace length c. 5.77; retrodorsal surface of metatarsi IV with spines (Fig. 19E); venter entirely pallid (Fig. 19F). Palpal bulb (Fig. 19B,C) with broad retrolateral embolic flange with c. 8 minute folds; embolus with prolateral curve, apophysis absent. Palpal tibia and cymbium as figured (Fig. 19A,D), retrolateral tibial apophysis inclined downwards, length of retroventral edge of tibial excavation and distal tibial apophysis suspending continuous brush of spines; distal tibial apophysis with thickened base, straight, horizontal; Female not known.

Description

Male holotype (Fig. 19A–F). *Size*. Carapace length 5.77, width 4.48. Abdomen length 5.21, width 3.07. *Colour*. In alcohol carapace, chelicerae and limbs dark tan, prosoma v surfaces paler. Dark brown smudges absent on limbs. Sparse cover of prostrate pallid hairs on caput, absent on limbs. Abdomen dorsum dark brown with 5 pallid transverse chevrons. Venter entirely pallid (Fig. 19F). *Carapace*. Edge with dense fringe black bristles; few encroach onto posterior half of post foveal surface. Line of 10 long median bristles on caput arch; transverse line of 3 bristles along anterior edge of fovea; 6 bristles between PME; 7 bristles on clypeus; 7 bristles on weakly chitinous pleuron below clypeus. Fovea width 0.95, straight, edges recurved; posterior wall not pitted. *Eyes*. Raised on mound. Area immediately adjacent to eyes black. Anterior width 1.02, posterior width 1.00, length 0.64, width/length ratio 1.59. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae*. Rastellum row of 6(6) spines; few smaller spines receding along anteroental edge of chelicerae. Intercheliceral tumescence small, swollen, pallid bearing sparse cover of minute brown setae. Fang groove with 7(7) promarginal teeth and 7(5) small retromarginal/intermediate row teeth. *Labium*. Bulbous, length 0.51, width 0.74. Labio-sternal suture divided centrally, broadening laterally. *Maxillae* c. 5(0) anteroental basally swollen setae taken to be elementary cuspules. *Sternum*. Length 3.36, width 2.25. Sigilla all small, round: Anterior pairs marginal, left posterior sigilla own diameter from margin, right posterior sigilla absent. *Legs*. Tibia I with distal bifid apophysis. Distal process with 2(2) short spines; proximal process with 3(3) longer, pointed spines.

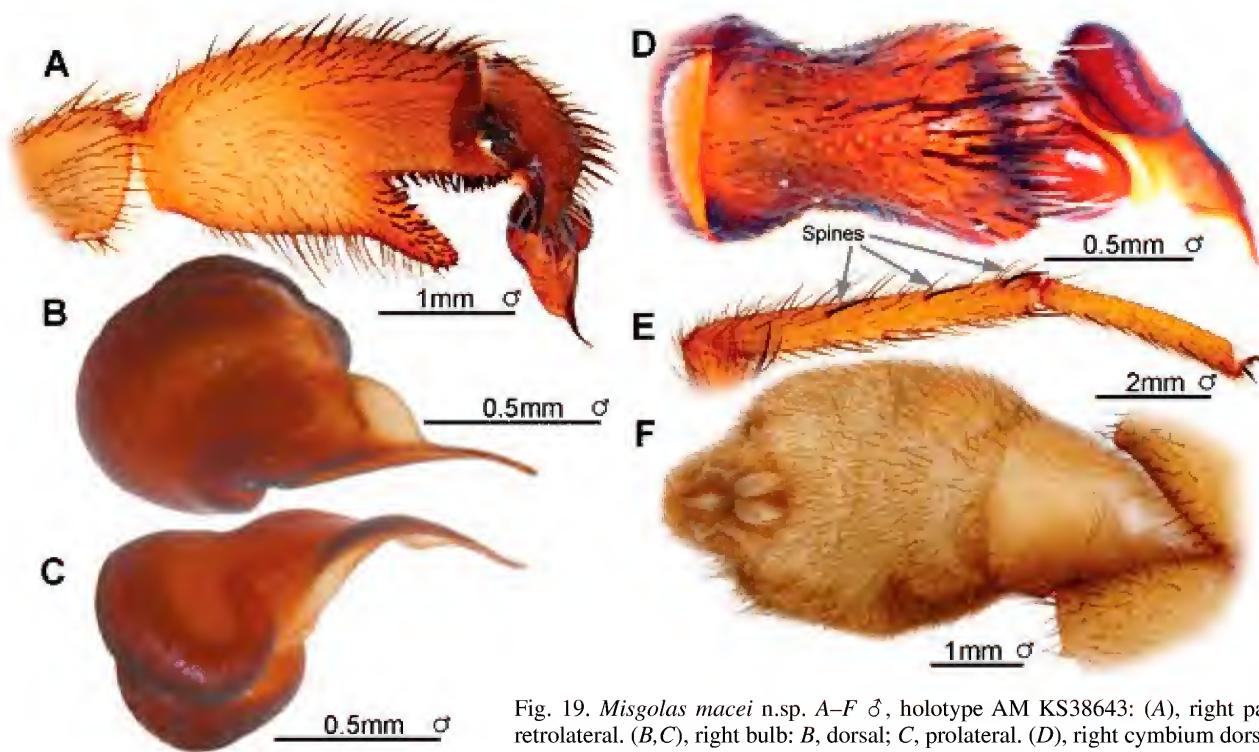


Fig. 19. *Misgolas macei* n.sp. A–F ♂, holotype AM KS38643: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), right cymbium dorsal. (E), right tarsus/metatarsus IV retrolateral. (F), venter.

	palp	I	II	III	IV
femur	2.95	5.34	4.91	4.24	5.52
patella	1.47	2.76	2.45	2.03	2.76
tibia	2.52	3.62	3.44	2.70	4.97
metatarsus	—	3.62	3.25	3.44	4.85
tarsus	1.23	2.27	2.08	2.27	2.70
total	8.17	17.61	16.13	14.68	20.80

Palp (Fig. 19A,D). Cymbium with c. 24 long attenuate anteriorly inclined spines distributed over distal third of d surface. RTA with thickened base, inclined downwards, d and rd surfaces covered with squat pointed spines over its full length. Length of rv edge of tibial excavation to end of horizontal, non-digitate DTA, suspending continuous brush of spines. TEM absent, weak TET on pl surface of RTA. **Bulb**. (Fig. 19B,C) Broad embolic rl flange with c. 8 minute folds, margin convexly curved. Embolus gently pl curved from d aspect, narrow, apophysis absent. **Scopula**. Complete on tarsi I and II. Sparse distal remnants on metatarsi I and II, absent on legs III and IV. **Trichobothria**. Palp: tarsi 8, tibia pd 5, rd 6. Leg I: tarsi 11, metatarsi 10, tibia pd 5, rd 6. Leg II: tarsi 11, metatarsi 10, tibia pd 6, rd 6. Leg III: tarsi 12, metatarsi 11, pd 5, rd 6. Leg IV: tarsi 11, metatarsi 15, tibia pd 8, rd 6. **Leg spination**. Leg I: metatarsi pl 01, rv 011001; tibia rv 0111. Leg II: tarsi rl 1 subproximal (broken), 3 subdistal; metatarsi pv 0101 (both broken), rv 01 (broken) 1112 (both broken); tibia v 0111, pd 0110. Leg III: tarsi v 14; metatarsi v 02223, d 02220; tibia v 0122, pl 0110, rl 0110; patella pd 5 (2 broken). Leg IV (Fig. 19E): tarsi v 14; metatarsi v 9, rd 001110; tibia v 7, rd 0110. **Abdomen**. Dorsum covered with long dark brown bristles with underlying short setae. Venter covered with weak pallid bristles.

Etymology. The species is named in recognition of Mr Selwyn Mace, Gerringong resident and valued collector.

Distribution and natural history. (Fig. 24D). This spider is known only from the type locality, the Bulga State Forest, approximately 30 km ENE of the town of Comboyne, N.S.W. The burrow is unknown.

Misgolas grayi n.sp.

Figs 20A–I, 24D

Type material. HOLOTYPE ♂, AM KS86203, Gloucester Caves, N.S.W., Glow-worm Cave, Seive GL2 (32°25'S 151°41'E), 22 Jun.2003, M. Gray; holotype collected from burrow as penultimate juvenile 22 June 2003; reared to adult male 13 Oct. 2003. ALLOTYPE ♀, AM KS69976, data as for holotype. PARATYPE ♀: AM KS69977, data as for holotype.

Diagnosis. Small (male carapace length, c. 5.1) to medium (female carapace length, c. 6.6) light brown spiders; retrodorsal surface of metatarsi IV with weak spines, at least one midway (Fig. 20G); venter entirely pallid (Fig. 20E,F). Perimeter of ♂ carapace fringed with single orderly file black bristles (Fig. 20D), ♀ with weaker brown bristles (Fig. 20H). In male: palpal bulb (Fig. 20B,C) with retrolateral embolic flange with many extremely fine folds, distal edge curved under embolus; embolus tip twisted, with prolateral bend, embolic apophysis absent. Conformation of palp as figured (Fig. 20A). Burrow entrance as figured (Fig. 20I).

Description

Male holotype (Fig. 20A–E). **Size.** Carapace length 5.15, width 3.99. Abdomen length 4.24, width 2.95. **Colour.** In alcohol carapace, legs, palps and chelicerae light tan; dark brown smudges absent from lateral limb surfaces. Few sparse pallid hairs on caput, absent on limbs. Abdomen dorsum

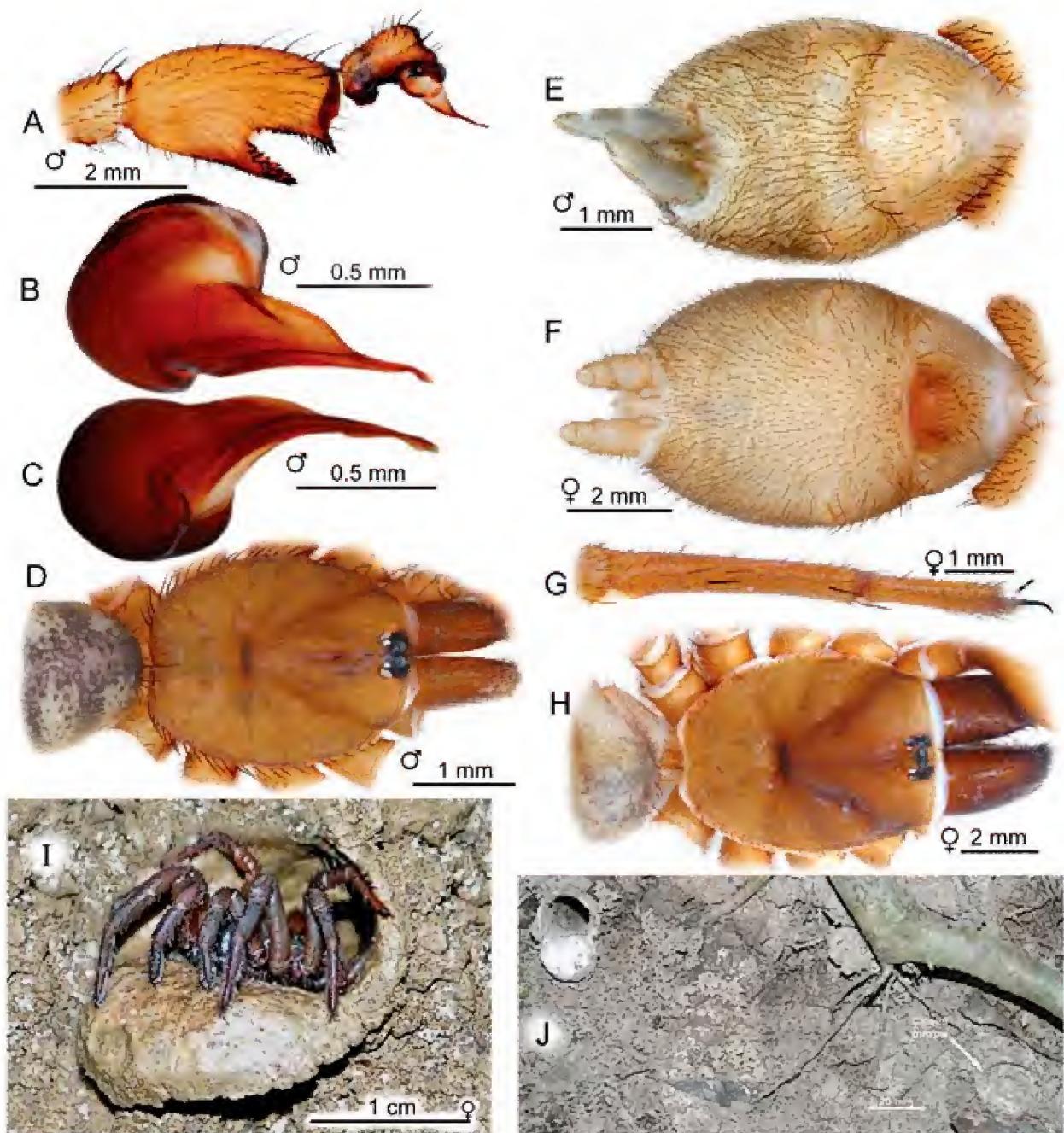


Fig. 20. *Misgolas grayi* n.sp. A–E ♂, holotype AM KS86203: (A) right palp retrolateral. (B, C) right bulb: B, dorsal; C, prolateral. (D) carapace. (E) venter. (F–J) ♀, allotype AM KS69976: F, venter; G, right tarsus and metatarsus IV retrodorsal; H, carapace; I, spider at burrow entrance (photo by Garry K. Smith). (J), burrows of unidentified spiders at Wootton, NSW.

dark brown, with broad pallid chevrons in bilateral series of six. Venter entirely pallid (Fig. 20E). *Carapace*. (Fig. 20D) Entire edge fringed with single orderly file of black bristles, c. 10, encroach onto the post foveal surface. Rows of 3 or 4 black bristles along each stria; row of 6 on caput arch. Group of 3 bristles between PME. Group of 5 bristles on clypeus. Area extending onto pleuron below clypeus only slightly chitinous and bearing one hair. Fovea width 0.77, straight with recurved edges, posterior wall not pitted. *Eyes*. AME raised on pronounced mound, area surrounding anterior row black. Anterior and posterior row widths equal, 0.89, length 0.64, width/length ratio 1.39. Line joining posterior edge of ALE transects anterior third of AME. Posterior row straight

in front, recurved behind. *Chelicerae*. Rastellum a single row of 5(6) weak spines; posterior spines absent. Intercheliceral tumescence entirely pallid, each covered with c. 17 setae. Fang groove with 9(9) promarginal teeth, 7(7) smaller retro-marginal/intermediate row teeth. *Labium*. Slightly bulbous, twice as wide as long, length 0.53, width 1.04. Labio-sternal suture narrow, centrally divided. *Maxillae* c. 10(18) small, stick-like antero-oral cuspules. *Sternum*. Length 2.58, width 2.03. Sigilla all small, round. Anterior pairs submarginal, posterior pair c. its own diameter from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) straight pointed spines, proximal process with 3(3) longer curvilinear pointed spines.

	palp	I	II	III	IV
femur	2.84	4.97	4.67	3.99	5.16
patella	1.33	2.33	2.09	1.84	2.33
tibia	2.71	3.56	3.44	2.58	4.54
metatarsus	—	3.68	3.50	3.38	4.91
tarsus	1.15	2.21	2.15	2.07	2.58
total	8.03	16.75	15.85	13.86	19.52

Palp (Fig. 20A). Cymbium with c. 18 long, attenuate, anteriorly inclined spines distributed over distal half of d surface. RTA digitate, without swelling, almost horizontal, covered with squat pointed d and rd spines. Smaller spines on proximal half of rv edge of tibial excavation; c. 18 longer spines on distal half continuing onto short, straight DTA parallel to RTA. TEM small, pointed, adjacent to RTA. TET not seen. **Bulb.** (Fig. 20B,C) Embolic rl flange with many extremely fine folds, gently convexly curved, distal edge curved under embolus. Embolic apophysis absent; tip twisted and with pl bend. **Scopula.** Complete, sparse and weak on tarsi I and II, a few apical scopula setae on metatarsi I and II; absent on legs III and IV. **Trichobothria.** Palp: tarsi 7, tibia pd 5, rd 6. Leg I: tarsi 10, metatarsi 11, tibia pd 6, rd 5. Leg II: tarsi 10, metatarsi 10, tibia pd 6, rd 6. Leg III: tarsi 11, metatarsi 10, tibia pd 5, rd 6. Leg IV: tarsi 10, metatarsi 12, tibia pd 7, rd 6. **Leg spination.** Leg I: tarsi pv 0110, rv 01110; metatarsi pv 0011, rv 0112; tibia rv 0112, pl 010. Leg II: tarsi pv 00111010; metatarsi v 12 scattered; tibia v 0112, pd 0110; Leg III: tarsi v 12 scattered; metatarsi v 10 scattered, d 002220; tibia v 0113, d 03320; patella pd 3. Leg IV: tarsi v 10 scattered; metatarsi v 10 scattered, rd 010; tibia v 6 scattered, rl 0110. **Abdomen.** Dorsum with cover of long dark brown bristles, longer on anterior surface. Smaller bristles extend to and become abundant on venter. Underlying fine setae absent.

Female allotype. (Fig. 20F–H). **Size.** Carapace length 6.57, width 3.99. Abdomen length 7.74, width 2.95. **Colour.** In alcohol carapace, legs, palp and chelicerae as for male. Dark brown smudges absent from lateral limb surfaces. Very few fine pallid hairs on caput, absent on limbs. Abdomen dorsum deteriorated, dorsum of paratype AM KS69977 as for male. Venter entirely pallid. **Carapace.** (Fig. 20H) Bristle arrangement similar to and as for male excepting bristles reduced in size. Group of 7 on clypeus. Area extending onto pleuron below clypeus not chitinous, with 1 large and 2 small bristles. Fovea width 0.98, deep, straight with recurved edges, posterior wall centrally divided by small pitted intrusion. **Eyes.** AME and PME placed on mound. Area immediately surrounding eye margins black. Anterior width 1.13, posterior width 1.15, length 0.69, width/length ratio 1.67. Line joining posterior edge of ALE transects anterior quarter of AME. Posterior row procurved in front, recurved behind. **Chelicerae.** Rastellum front row of 7(7) strong spines, 2(2) spines behind. Fang groove with 9(10) promarginal teeth and 13(11) smaller retromarginal/intermediate row teeth. **Labium.** Broad, bulbous, length 0.82, width 1.33. Labio-sternal suture as for male. **Maxillae** c. 44(42) short blunt anteroental cuspules. **Sternum.** Length 3.55, width 2.80. Sigilla as for male. Anterior pair its own diameter, midpair 1.5 diameters and posterior pair 2 diameters from margin. **Legs.**

	palp	I	II	III	IV
femur	3.99	5.16	4.54	3.67	5.26
patella	2.21	2.88	2.70	2.29	3.07
tibia	2.64	3.31	2.94	2.09	4.42
metatarsus	—	2.76	2.64	2.53	4.11
tarsus	2.64	1.72	1.66	1.70	2.08
total	11.48	15.83	14.48	12.28	18.94

Scopula. Complete on palpal tarsi, complete and weak on tarsi I and II, few distal scopula setae on metatarsi I and II; absent on legs III and IV. **Trichobothria.** Palp: tarsi 8, tibia pd 6, rd 6. Leg I: tarsi 12, metatarsi 11, tibia pd 7, rd 6. Leg II: tarsi 13, metatarsi 11, tibia pd 7, rd 7. Leg III: tarsi 12, metatarsi 9, tibia pd 6, rd 7. Leg IV: tarsi 11, metatarsi 15, tibia pd 8, rd 7. **Leg spination.** Palp: tarsi pl 110000, rl 110000; tibia v 0222, rv 01110, pl 00011. Leg I: tarsi 1 sub-distal; metatarsi v 11 scattered; tibia v 011113. Leg II: tarsi rv 6 scattered on distal half; metatarsi v 11 scattered; tibia v 0011113. Leg III: tarsi v 8 scattered; metatarsi v 10 scattered, d 02220; tibia v 0113, pd 0110, rd 0110; patella pd 3. Leg IV: (Fig. 20G) tarsi v 9 scattered on distal two-thirds; metatarsi v 01213, rd 01010; tibia v 7 scattered. **Abdomen.** Dorsum with sparse cover of weak dark brown bristles most concentrated and longer on median surface; longest bristles on anterior surface. Shortest bristles abundant on venter. Understory of fine setae absent. **Genitalia.** Sclerous lip of epigynum straight.

Etymology. The species is named in recognition of Dr Michael R. Gray, arachnologist and one time head Division of Invertebrate Zoology, Australian Museum, Sydney and collector of type material of this spider.

Distribution and natural history. (Fig. 24D) Known only from the type locality, cave entrance approximately 7 km WSW of the town of Dungog, N.S.W.

Burrow entrance with lid conserved: Dry collection AM KS86204, from type locality.

The collector of the type specimens reports the burrows excavated were from damp mud walls in dark zone near cave entrance. The trapdoor opens downwards, spider rests on door when hunting (Fig. 20I). Trapdoor is of mud, plug-like.

One of us (GW) has been made aware (H. Smith, pers. comm., 13 July 2007) of a 1922 record of burrows with similar entrances to that described above and situated at Wootton, NSW, about 60 km East of the type locality of *M. grayi* (Papers of Sidney William Jackson, National Library of Australia, MS466, Series 3 Field trip books, 1908–1922, Folder 167–171, Woolton (sic) and Wallis Lake Trip, 26 September–2 December 1922). More burrows have now been found in the Wootton locality (GW, 3 Aug. 2007, Coolongolook River, Wootton, N.S.W., 100 m North of bridge, on West bank [32°17'48"S 152°17'55"E]) and are as described by Jackson (Fig. 20J). The identity of the spider has not been determined.

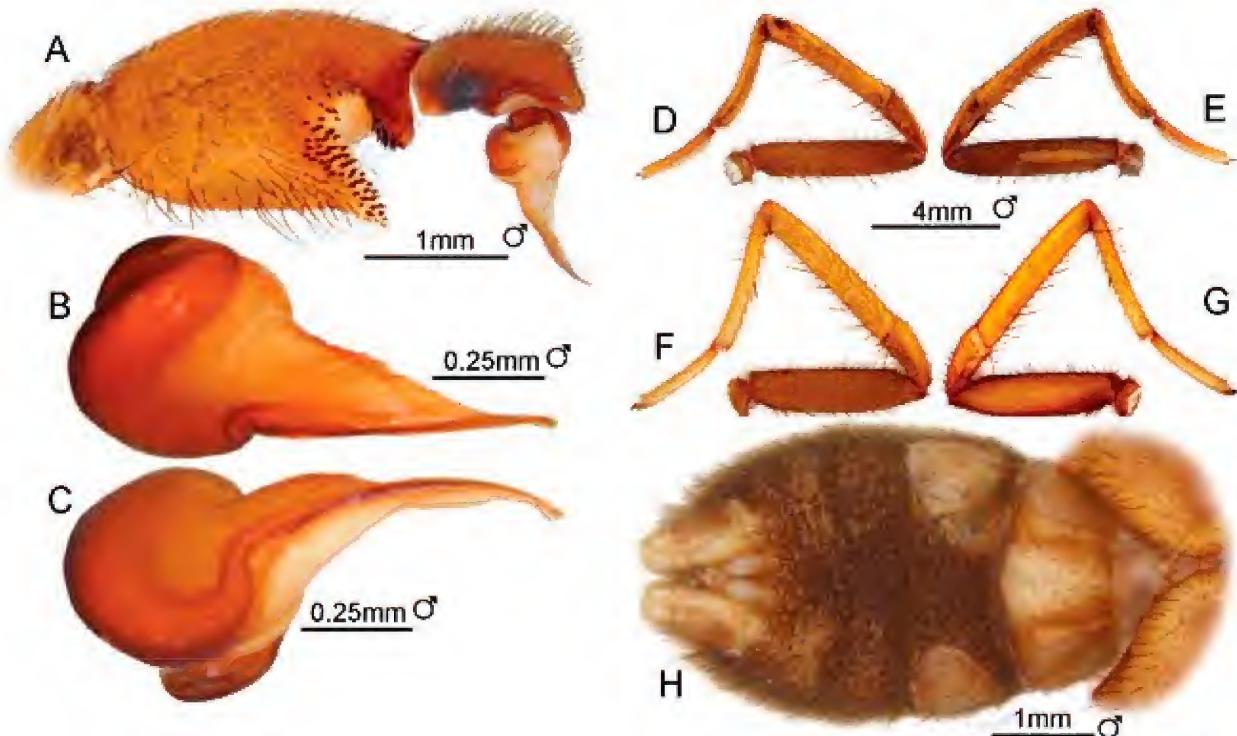


Fig. 21. *Misgolas brownningi* n.sp. A–C, H ♂, paratype AM KS5418. (A), right palp retrolateral. (B, C), right bulb: B, dorsal; C, prolateral. (H), venter. D–G ♂, holotype AM KS5437: (D, E), right leg I: D, prolateral; E, retrolateral. (F, G), right leg IV: F, prolateral; G, retrolateral.

Misgolas brownningi n.sp.

Figs 21A–H, 24D

Type material. HOLOTYPE ♂, AM KS5437, Kerewong State Forest, nr Lorne, site 108(3) (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1598, set 30 May 1979, collected 1 Sep. 1979, D. Milledge. PARATYPES. ♂♂: AM KS5407, Kerewong SF, nr Lorne, site 108(1) (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1596, set 30 May 1979, collected 1 Sep. 1979, D. Milledge. AM KS5418, Kerewong SF, nr Lorne, site 108(2) (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1597, set 30 May 1979, collected 1 Sep. 1979, D. Milledge. All type specimens brittle and easily damaged, possibly first preserved in formalin.

Diagnosis. In male: small dark tan spider, carapace length c. 4.50; retrodorsal surface of metatarsi IV without spines (Fig. 21G); venter entirely dark brown (Fig. 21H). All tarsi without spines (Fig. 21D–G). Palpal bulb (Fig. 21B, C) retrolateral embolic flange with 3 prominent and c. 3–4 minor folds, margin straight; embolic apophysis absent. Palp as figured (Fig. 21A), retrolateral tibial apophysis short, stout; distal tibial apophysis enlarged, cymbium dorsal surface with dense cover of weak bristles and long pallid hair. Female not known.

Description

Male holotype (Fig. 21A–H). **Size.** Carapace length 4.48, width 3.68. Abdomen length 4.54, width 2.77. **Colour.** In alcohol carapace, chelicerae and all femora dark brown; distal limb segments light tan. Pallid hairs on carapace concentrated on caput and carapace perimeter, extending

onto chelicerae and proximal limb segments. Elongate dark brown bilateral smudges most pronounced on anterior limbs, reduced on posterior limbs (Fig. 21D–G). Abdomen dorsum dark brown with 6 pallid transverse chevrons; venter entirely dark brown (Fig. 21H). **Carapace.** Edge fringed with black bristles which encroach onto posterior half of post foveal surface. Line of 6 bristles on caput arch. Group of 6 small bristles with many fuscous hairs on clypeus. Area on pleuron membrane below clypeus free of chitin and setae. Fovea width 0.92, straight, deep, recurved edges; posterior wall not pitted. **Eyes.** Raised on mound. Area adjacent to eyes black; anterior width 1.05, posterior width 0.87, length 0.55, width/length ratio 1.91. Line joining posterior edge of ALE bisects AME. Posterior row recurved in front, straight behind. **Chelicerae.** Rastellum row of 5(5) spines, 2(3) behind. Fang groove teeth and intercheliceral tumescence detail not visible without damaging chelicerae. **Labium.** Bulbous. Length 0.51, width 0.79. Labio-sternal suture broad, continuous, straight, extremities procurved. **Maxillae** c. 27(27) squat, pointed anteroventral cuspules. **Sternum.** Bulbous, not elongate, almost round. Length 2.48, width 2.00. Sigilla round: anterior pair small, marginal; mid pair small, own diameter from margin; posterior pair larger, twice diameter from margin. **Legs.** Right leg III missing. Tibia I with distal bifid apophysis. Distal process with 2(1) short spines, proximal process with 2(1) long spines. All inferior third claws reduced or lost.

	palp	I	II	III	IV
femur	2.64	5.22	4.66	(3.47)	5.03
patella	1.15	2.39	2.09	(1.60)	2.21
tibia	2.29	4.18	3.56	(2.21)	4.79
metatarsus	—	3.62	3.13	(2.82)	4.24
tarsus	1.03	2.28	2.03	(1.91)	2.46
total	7.11	17.69	15.47	(12.01)	18.73

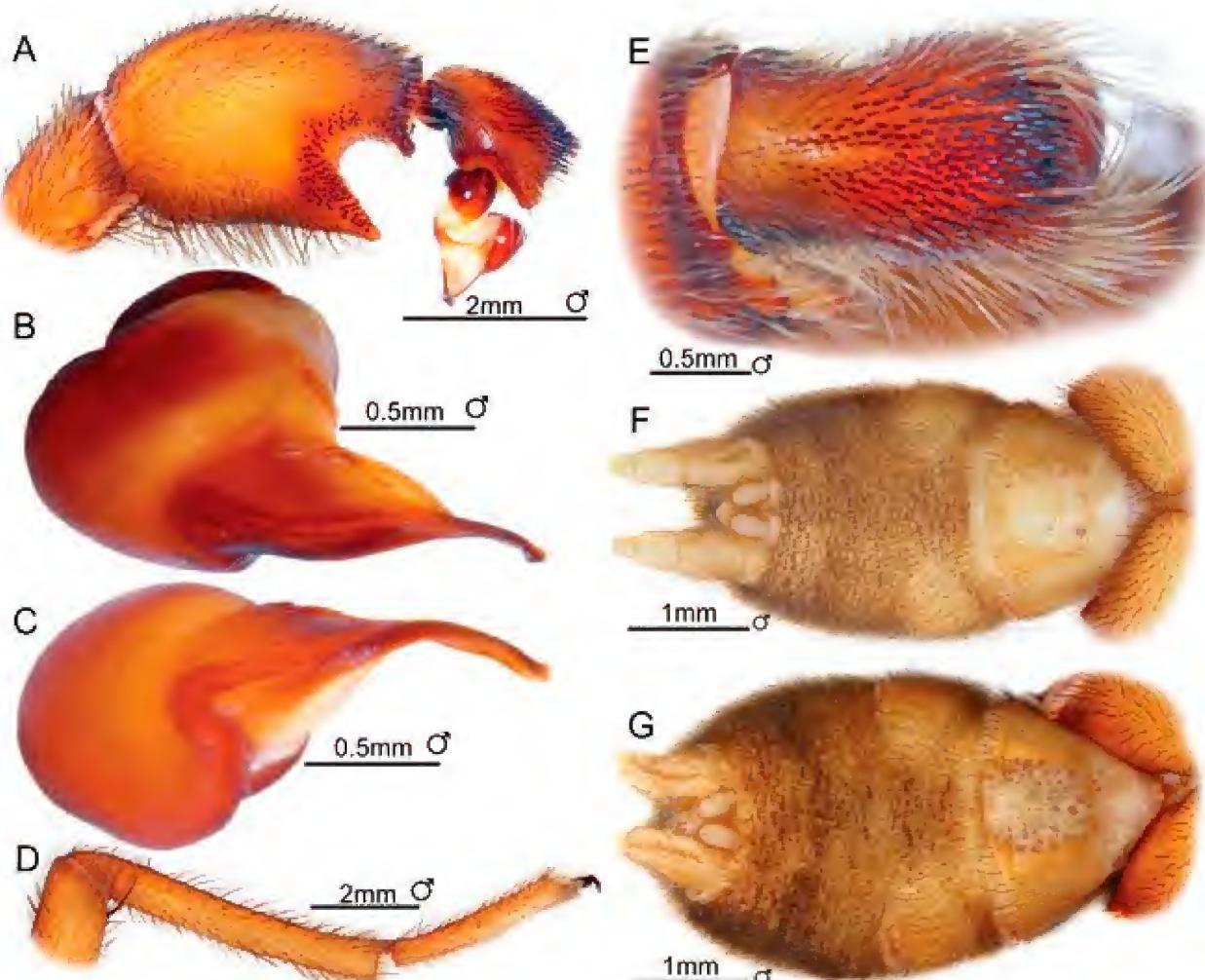


Fig. 22. *Misgolas linklateri* n.sp. A, E, G ♂, paratype AM KS5383: (A), right palp retrolateral. (E), right cymbium dorsal. (G), venter. B, C, D, F ♂, holotype AM KS5460: (B, C), right bulb; B, dorsal; C, prolateral. (D), right tarsus and metatarsus IV retrolateral. (F), venter.

Palp (Fig. 21A). Cymbium d surface with dense cover of weak bristles and long prostrate pallid hair; spines absent. RTA short, stout, with cover of short rd spines which continue along rv edge of tibial excavation and onto a bulky, almost vertically suspended, DTA. TEM large, pallid, contiguous with RTA, pl surface with prominent TET. **Bulb** (Fig. 21B,C) Embolic rl flange with 3 prominent plus 2 minor folds, margin straight, occupying almost entire length of straight embolus. Embolic apophysis absent. **Scopula**. Complete on all tarsi. Progressively weaker and incomplete on metatarsi. **Trichobothria**. Palp: tarsi 8, tibia pd 4, rd 5; Leg I: tarsi 10, metatarsi 12, tibia pd 6, rd 5; Leg II: tarsi 9, metatarsi 10, tibia pd 6, rd 5; Leg III: tarsi (9), metatarsi (9), tibia pd (5), rd (5); Leg IV: tarsi 10, metatarsi 9, tibia pd 6, rd 6. **Leg spination**. (Fig. 21D–G) Absent on all tarsi. Leg I: tibia v 01112. Leg II: metatarsi v 010, tibia v 01113. Leg III: metatarsi (d 0020020), tibia (rl 010, v 0113), patella pd (5). Leg IV: metatarsi v 01200, tibia v 0111. **Abdomen**. Dorsum covered with long brown bristles. Venter covered with shorter, weaker, brown bristles.

Etymology. The species is named in recognition of assistance given to GW by Mr George Browning of Coogee, NSW.

Distribution and natural history. (Fig. 24D) This spider is known only from the type locality, the Kerewong State Forest near the town of Lorne, N.S.W. The burrow is unknown.

Misgolas linklateri n.sp.

Figs 22A–G, 24D

Type material. HOLOTYPE ♂, AM KS5460, Kerewong State Forest, nr Lorne, site 108(2) (31°36'S 152°34'E), 15 July 1979, pit fall trap field No. 1597, litter, set 30 May 1979, collected 1 Sep. 1979, D. Milledge. PARATYPE ♂, AM KS5383, Lorne State Forest, nr Lorne, site 86(3) (31°35'S 152°37'E), 15 July 1979, pit fall trap field No. 1593, litter, set 30 May 1979, collected 1 Sep. 1979, D. Milledge. Type specimens, possibly first preserved in formalin, brittle and easily damaged.

Diagnosis. In male: medium sized dark tan spider, carapace length c. 7.25–7.8; retrodorsal surface of metatarsi IV without spines (Fig. 22D); venter as figured (Fig. 22F,G). Spines absent on all tarsi. Palpal bulb (Fig. 22B,C) retrolateral embolic flange as figured with c. 6 folds plus c. 3 minor

folds; embolus with prolateral curve, apophysis absent. Palp as figured (Fig. 22A,E); retrolateral tibial apophysis short, stout; distal tibial apophysis small, digitate. Cymbium dorsal surface with dense cover of short blunt sub-erect spines.

Description

Male holotype (Fig. 22A–G). *Size.* Carapace length 7.25, width 6.08. Abdomen length 7.18, width 4.36. *Colour.* In alcohol chelicerae, carapace and all femora dark tan; distal limb segments lighter, dark brown smudges absent. Pallid hairs on caput; sparse cover on inter stria and proximal limb segments. Abdomen dorsum dark brown with 6 inconspicuous pallid transverse chevrons. Venter pallid with many dense, evenly distributed dark brown small speckles (Fig. 22F), tending to be most dense along median band and central transverse band (refer paratype AM KS5383, [Fig. 22G]). *Carapace.* Edge fringed with black bristles which encroach onto posterior half of post foveal surface. Line of c. 18 weak median bristles on caput arch (some rubbed off); group of c. 12 between PME, 9 longer bristles and some weak setae on clypeus; c. 12 fine setae on weakly chitinous pleuron membrane below clypeus. Fovea width 1.41, straight, deep; posterior wall basally centrally divided by small pitted intrusion. *Eyes.* Raised on mound. Area immediately adjacent to eyes black; anterior width 1.34, posterior width 1.18, length 0.70, width/length ratio 1.91. Line joining posterior edges of ALE bisects AME. Posterior row straight in front, recurved behind. *Chelicerae.* Rastellum row of 7(7) spines, 6(6) smaller spines behind. Fang groove teeth and intercheliceral tumescence detail not visible without damaging chelicerae. *Labium.* Low. Length 0.87, width 3.19. Labio-sternal suture broad, narrowed centrally, continuous. *Maxillae* c. 28(28) small anteroventral cuspules all surmounted by a fine hair. *Sternum.* Length 3.99, width 3.19. Sigilla round; anterior and mid pairs small, one diameter from margin; posterior pair larger, two diameters from margin. *Legs.* Tibia I with distal bifid apophysis. Distal process with 2(3) short spines, proximal process with 2(2) longer spines.

	palp	I	II	III	IV
femur	4.48	7.12	6.14	4.79	6.93
patella	2.29	3.50	3.25	2.52	3.38
tibia	3.51	5.28	4.48	2.76	6.08
metatarsus	—	5.28	4.54	3.99	6.02
tarsus	1.94	3.07	2.82	2.52	3.01
total	12.22	24.25	21.23	16.58	25.42

Palp (Fig. 22A,E). Cymbium with bilateral brushes of long, pallid setae; c. 200 short blunt sub-erect spines distributed over distal five-sixths of d surface. Short, stout RTA, rd surface covered with squat pointed spines continuing along rv edge of tibial excavation onto DTA. DTA digitate, directed almost vertically downwards. TEM swollen, not pointed, contiguous with RTA, pl face chitinous bearing prominent TET. *Bulb* (Fig. 22B,C). Embolic rl flange with c. 6 folds plus c. 3 minor folds, margin gently curved, distally folded under pl curved embolus. Embolic apophysis absent, embolus tip complex. *Scopula.* Complete on all tarsi. Progressively weaker and reduced from metatarsi I to metatarsi IV. *Trichobothria.* Palp: tarsi 8, tibia pd 6, rd 5. Leg I: tarsi 12, metatarsi 12, tibia pd 6, rd 6. Leg II: tarsi 11, metatarsi 12, tibia pd 6, rd 6. Leg III: tarsi 10, metatarsi 8,

tibia pd 6, rd 6. Leg IV: tarsi 12, metatarsi 11, tibia pd 6, rd 7. *Leg spination.* Absent on all tarsi. Leg I: tibia v 0111111. Leg II: metatarsi v 010; tibia v 0112. Leg III: metatarsi pd 0111110, rd 000110; tibia v 0113, pl 001110, rl 011; patella pd 10. Leg IV: (Fig. 22D) metatarsi v 010111; tibia v 012. *Abdomen.* Dorsum covered with long dark bristles with underlying prostrate pallid hairs. Venter covered with shorter weaker brown bristles.

Etymology. The species is named in recognition of neighbour and mentor, Dr Peter Linklater of Gerringong, NSW.

Distribution and natural history. (Fig. 24D) This spider is known only from the type localities, the Kerewong and Lorne State Forests near the town of Lorne, NSW. The burrow is unknown.

Misgolas chisholmi (Hickman, 1933) identity uncertain

This spider is known only from the type locality, described as the town of “Comboyne, New South Wales” (31°35'S 152°28'E), a locality within the geographical bounds of this work (Fig. 24B). Because the type material is female with attendant character poor morphology it presently is not assigned an identity (Wishart, 2006).

Misgolas milledgei n.sp.

Fig. 23A–H

Type material. HOLOTYPE ♂, AM KS21570, Bondi, Eastern suburb of Sydney, (33°53'S 151°17'E), 4 Apr. 1989, J. Weiss, found wandering in house.

Diagnosis. In male: Large sized dark brown spider, carapace length c. 8.5–9, retrodorsal surface of metatarsus IV without spines (Fig. 23G); venter pale with dark brown maculations in median and a transverse bands (Fig. 23E). Spines absent on tarsi I–III, row of 2–3 on proventral surface tarsi IV (Fig. 23F). Palpal bulb retrolateral embolic flange with c. 8 distinct folds; embolus as figured (Fig. 23B,C). Cymbium dorsal surface with many crowded short blunt sub-erect spines (Fig. 23H). Conformation of palpal tibia as figured (Fig. 23A). Female not known.

Description

Male holotype (Fig. 23A–H). *Size.* Carapace length 8.72, width 7.06. Abdomen length 7.74, width 5.29. *Colour.* In alcohol carapace, limbs and chelicerae dark brown; darker brown limb smudges absent. Carapace and limbs with few sparse golden hairs. Abdomen dorsum dark brown with c. 6 pallid transverse chevrons (Fig. 23D). Venter pallid with some dark brown maculations forming median and central transverse bands (Fig. 23E). *Carapace.* (Right anterior segment of carapace damaged) Edge fringed with black bristles which encroach onto posterior quarter of post foveal surface. Few weak black inter-strial bristles. Row of c. 16 black bristles on caput arch; 11 between PME; 21 on clypeus. Weakly chitinized area on pleuron membrane

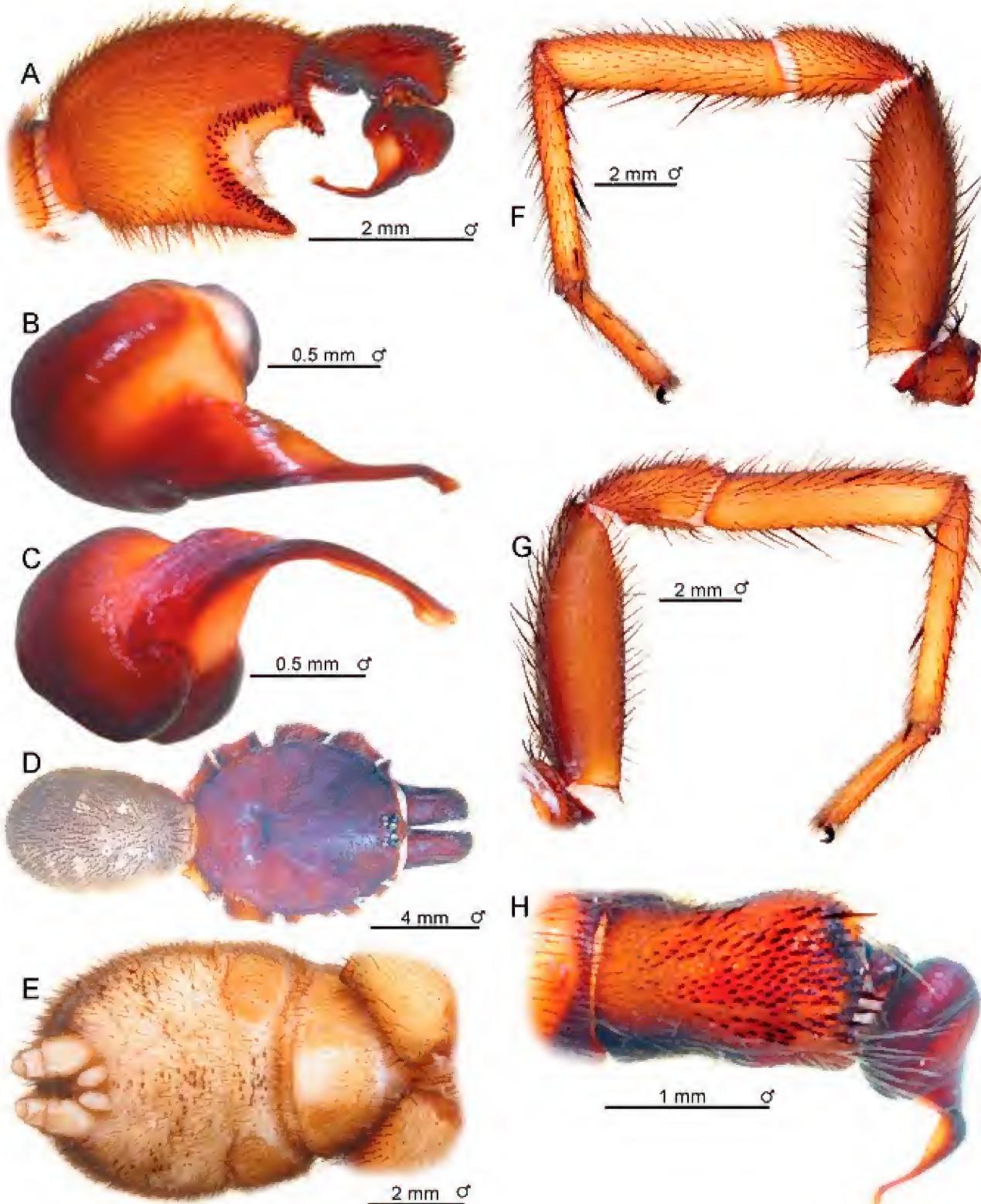


Fig. 23. *Misgolas milledgei* n.sp. A–H ♂, holotype AM KS21570: (A), right palp retrolateral. (B,C), right bulb: B, dorsal; C, prolateral. (D), body dorsum. (E), venter. (F,G), right leg IV: F, prolateral; G, retrolateral. (H), right cymbium dorsal.

below clypeus with 3 bristles and few fine setae. Fovea width 1.69, recurved, posterior wall centrally divided by minute pitted intrusion. *Eyes*. Raised on mound. Ocular area darker adjacent to eyes. Anterior width 1.36, posterior width 1.25, length 0.77, width/length ratio 1.77. Line joining posterior edges of ALE bisects AME. Posterior row straight in front,

recurved behind. *Chelicerae*. Rastellum first row 7(6) strong spines, few smaller spines scattered behind. Intercheliceral tumescence small, indistinct. Fang groove with 9(9) promarginal teeth, 9(12) smaller retromarginal/intermediate row teeth. *Labium*. Bulbous, length 1.05, width 1.31. Labiosternal suture narrowed medially, continuous. *Maxillae* c. 12(16)

reduced or elementary anteroventral cuspules appearing as thickened setae. *Sternum*. Length 4.42, width 3.68. Sigilla first and second pair small, round; third pair larger, ovate; first pair one diameter from margin, second pair twice its diameter from margin, third pair twice its length from margin. *Legs*. Tibia I with distal bifid apophysis; distal process with 2(2) blunt compact spines, proximal process with row of 3(3) longer pointed compact spines.

	palp	I	II	III	IV
femur	4.42	7.37	6.63	5.34	7.18
patella	2.49	3.99	3.62	2.95	3.62
tibia	3.56	4.85	4.42	4.18	5.83
metatarsus	—	5.77	4.91	4.24	6.39
tarsus	1.66	3.19	3.01	2.58	3.07
total	12.13	25.17	22.59	19.29	26.09

Palp (Fig. 23A). Cymbium with many crowded short blunt sub-erect spines distributed on distal four-fifths of d surface. RTA short, pointed; d surface covered with short pointed spines which continue uninterrupted along rv edge of tibial excavation terminating at DTA end. DTA straight, inclined downwards. TEM prominent, pallid, adjacent to RTA, pl surface with indistinct TET. *Bulb* (Fig. 23B,C). Embolic rl flange with 8 distinct folds; margin straight. Embolus tip with pl bend from d aspect, suspending thin translucent flange from pl aspect. Embolic apophysis absent. *Scopula*. Complete on tarsi I and II; weaker, incomplete on metatarsi I and II; weaker, complete on tarsi III and IV; sparse distal remnants on metatarsi III and IV. *Trichobothria*. Palp: tarsi 9, tibia pd 5, rd 5. Leg I: tarsi 12, metatarsi 15, tibia pd 7, rd 7. Leg II: tarsi 11, metatarsi 13, tibia pd 6, rd 6. Leg III: tarsi 10, metatarsi 8, tibia pd 4, rd 7. Leg IV: tarsi 13, metatarsi 17, tibia pd 7, rd 7. *Leg spination*. Leg I: metatarsi rv 0100; tibia v 0112. Leg II: metatarsi rv 01101; tibia v 01102. Leg III: metatarsi pv 011, rv 010, pd 011110, rd 001110; tibia v 0113; patella pd 8. Leg IV: tarsi pv 0110(01110); metatarsi v 011212; tibia 0222. *Abdomen*. Dorsum with dense cover of erect long dark brown bristles; venter with dense cover of weak, short, sub-erect brown bristles.

Remarks. This holotype specimen was earlier erroneously thought to have been collected from the Bondi State Forest (S.E. N.S.W.). It is the only example of the species presently known. It is extraordinary that more have not been collected during the long period that the Bondi urban area of Sydney

has been densely settled. Albeit this phenomenon is shared by the recently described *M. wayorum* Wishart, 2006 and is additional to the eleven known species found from the Sydney region (Wishart, 2006). The conformation of the specimen precludes it being conspecific with *M. maculosus* (Rainbow & Pulleine, 1918).

Etymology. The species is named in recognition of arachnologist and curator of arachnids at the Australian Museum, Graham Milledge.

Distribution and natural history. The spider is known only from the type locality, the Sydney seaside suburb of Bondi. That a few grains of sand are retained in the fovea of this specimen and Bondi being a sandstone locality supports the integrity of the type locality report.

Discussion

The discovery of the spider *M. grayi* added a unique mode of burrow entrance to the variety already known within the genus. The trapdoor lid is pluglike and, when on a steeply sloped bank, opens fully out onto the lower side of the burrow entrance, the hinge being lowermost. The spider when awaiting prey rests on the open lid and thereby faces down the slope keeping the entrance open (Fig. 20I). The only other known *Misgolas* spp. which utilize a trapdoor at the burrow entrance are *M. gracilis* and *M. kirstiae* both of which have a flaccid flap as a lid. When at the entrance these spiders keep the lid open by supporting it with its caput. Table 1 gives a summary of the known forms of burrow entrances utilized by spiders of the *Misgolas* genus.

A new character introduced in this work is the presence of a pitted intrusion in the posterior wall of the fovea (e.g., Fig. 6I). Because the distribution and appearance of this character varies considerably between and within species—from well developed to absent—and can differ between sexes, its significance is uncertain. Two other characters utilized in this study have a well defined taxonomic distribution across eight of the species described here (Table 2). They are the sinuous embolus tip and distal bilateral spine clusters on metatarsi I & II. Demanding investigation also is the occurrence of the hinged lid burrow of *M. grayi*. The discovery of more such unifying characters that may relate groups of species within this large genus is needed for a better understanding of the evolutionary patterns involved.

Table 1. Summary of known forms of burrow entrances utilized by *Misgolas* species.

burrow entrance	<i>Misgolas</i> spp. examples
half-moon shaped flaccid lid, lid rests on caput	<i>M. gracilis</i> , <i>M. kirstiae</i>
thick plug-like lid, lid hinge lowermost, spider rests on lid	<i>M. grayi</i>
open, rigid funnel-like entrance, lip oblique, hood-like, with attached vegetation	<i>M. villosus</i> , <i>M. rapax</i>
open, aerial tube (7cm +) attached to rock or stems	<i>M. robertsi</i> , <i>M. mascordi</i>
open, lip collar-like, level with ground, sealed by folding inwards	<i>M. dereki</i>

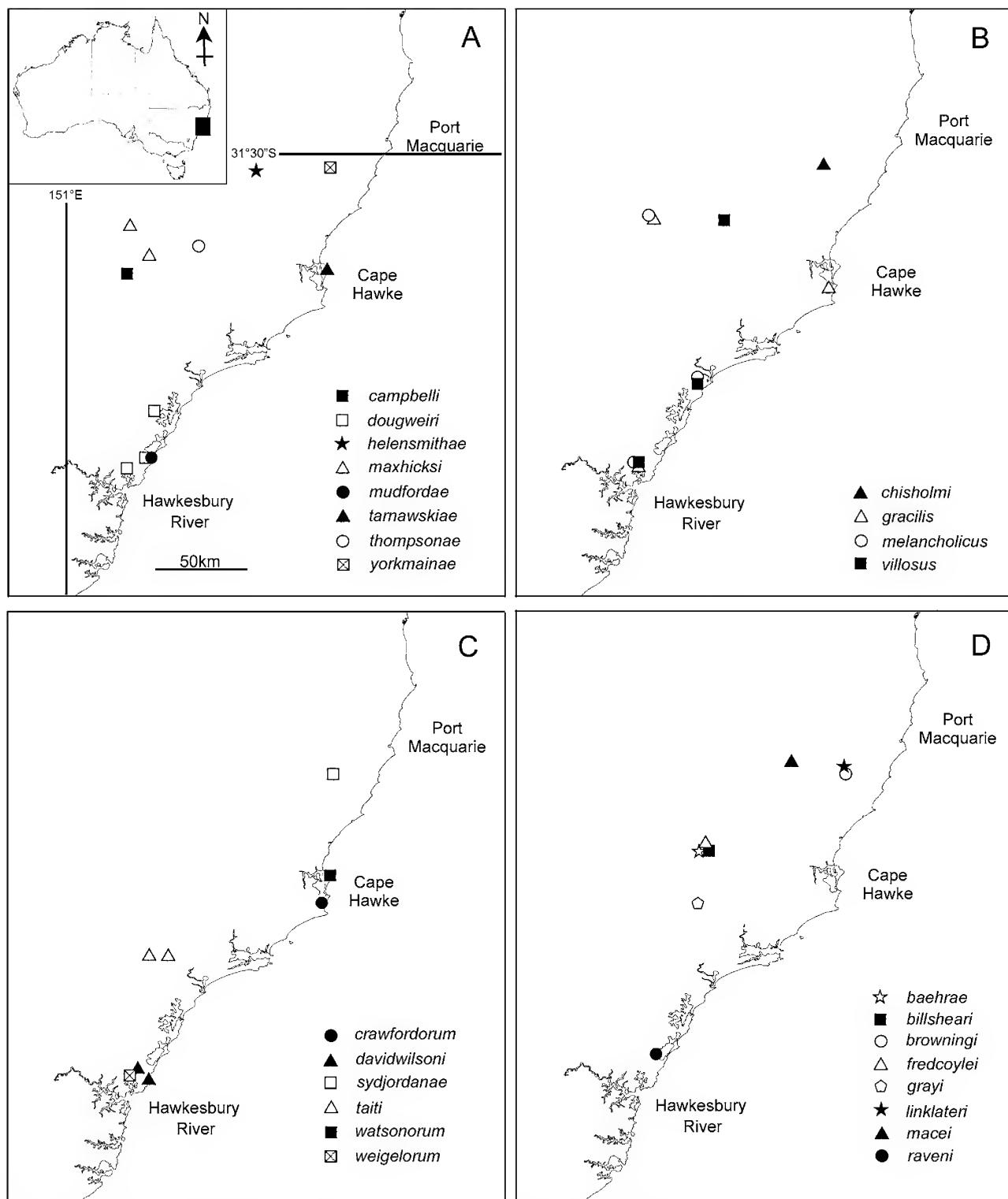


Fig. 24. A–D. Distribution of *Misgolas* species in the New South Wales Central Coast (eastern Australia) based on material examined (Inset [Fig. 24A] with catchment area).

Recent work on population genetics of slow moving invertebrates has shown that they may carry the genetic signature of past climatic events, even at a very fine scale. In Australia, this includes studies of terrestrial flatworms (Sunnucks *et al.*, 2006), collembolans (Garrick *et al.*, 2004) and funnelweb spiders (Beavis & Rowell, 2006). Moreover, comparative phylogeographic studies using multiple species make it possible to identify areas of high diversity, to inform

conservation management policy (Moritz *et al.*, 2001). As appropriate genetic markers have already been identified for use with mygalomorph spiders, the species complex identified here would be an excellent candidate for use in phylogeographic studies of this region.

Table 2. *Misgolas* spp. from this study with either one or both morphological characters as listed.

embolus tip sinuous	distal bilateral spine clusters on metatarsi I and II
<i>M. maxhicksi</i> n.sp.	<i>M. maxhicksi</i> n.sp.
<i>M. dougweiri</i> n.sp.	<i>M. dougweiri</i> n.sp.
<i>M. campbelli</i> n.sp.	<i>M. campbelli</i> n.sp.
<i>M. mudfordae</i> n.sp.	<i>M. mudfordae</i> n.sp.
<i>M. tarnawskiae</i> n.sp.	<i>M. yorkmainae</i> n.sp.
<i>M. thompsonae</i> n.sp.	<i>M. helensmithae</i> n.sp.

Notes on molecular data. Wishart and Rowell (1997) used allozymes to study relationships among a number of populations and species collected from the Sydney, Illawarra and Central Coast regions of New South Wales. On the basis of fixed gene differences and major differences in allelic frequency, it was concluded that *M. robertsi* (Main & Mascord, 1974), *M. dereki* Wishart, 1992 and *M. rapax* Karsch, 1878 (= *M. hubbardi* Wishart, 1992) represented distinct, reproductively isolated forms, supporting their assignment to different species. However the observed differences between *M. rapax* (= *M. hubbardi*) and the Berry population described in Wishart & Rowell (1997), most notably variations in venter pattern and conformation of a subdistal retrolateral apophysis on the male palpal embolus, were not reflected in allozymic variation. Thus it was argued that these two forms should not be recognized as separate species, although reservations associated with small sample sizes were expressed. By extrapolation it was also concluded that, in general, populations should be considered conspecific, despite differences in venter pattern and conformation of the subdistal retrolateral apophysis.

More recently Brownlie & Rowell sequenced 528bp of the mitochondrial cytochrome oxidase I gene for a range of spider species (unpublished), and clear differences, in the form of DNA sequence divergence, between the *M. rapax* (= *M. hubbardi*) and the Berry population have been observed. Pairwise comparisons between 2 specimens from the Berry population and 3 specimens of *M. rapax* (= *M. hubbardi*) showed sequence divergence of 10.6% to 11.4%. These are comparable with differences between recognized species such as *M. villosus* (Rainbow, 1914) from Sydney and *Misgolas* sp. Berry population (10.6%), *M. villosus* and *M. rapax* (= *M. hubbardi*) (10.2–10.8%), *M. gracilis* (Rainbow & Pulleine, 1918) and *M. rapax* (= *M. hubbardi*) (14.4–15.4%) and *M. dereki* and *M. rapax* (= *M. hubbardi*) (21–25%). Variation among the *M. rapax* (= *M. hubbardi*) and among the Berry specimens was 0.0–1.4% and 0.0% respectively.

On the basis of the magnitude of sequence divergence observed between *M. rapax* (= *M. hubbardi*) and the *Misgolas* sp. Berry population, in combination with the observed morphological differences, the recognition of these two forms as distinct species now appears justified (and will be addressed in a later publication). This is an important result as it shows that variation of venter pattern and conformation of the subdistal retrolateral apophysis on the male palpal embolus is indicative of species status in this case, despite earlier conclusions to the contrary. Given this, the taxonomic decision is taken in this work that other populations which show similar variation may represent distinct species providing justification for species status to *M. taiti* referred to by Wishart and Rowell (1997) as “Oakhampton population” and identified with *M. hubbardi* Wishart, 1992.

Revised species status

Misgolas rapax Karsch, 1878

Misgolas rapax Karsch, 1878: 821

Species in synonymy:

♂ ♀ *Misgolas hubbardi* Wishart, 1992 is placed in synonymy with *M. rapax* because female morphology of the two species does not differ significantly, this conclusion is supported by molecular data.

Species removed from synonymy:

♂ *Megalosara villosa* Rainbow, 1914 is removed from synonymy with *M. rapax* where it was placed by Main (1985a,b) without explanation and from which it differs in male palpal morphology. It is here recognized as *Misgolas villosus* n.comb.

♂ ♀ *Dyarcoops melancholicus* Rainbow & Pulleine, 1918 is removed from synonymy with *M. rapax* where it was placed by Main (1985a,b) without explanation and from which it differs in male palpal morphology. It is here recognized as *Misgolas melanocholicus* n.comb.

♂ ♀ *Arbanitis montanus* Rainbow & Pulleine, 1918 is removed from synonymy with *M. rapax* where it was placed by Main (1985a,b) without explanation and from which it differs in male palpal morphology. It is here recognized as *Misgolas montanus* n.comb.

♀ *Arbanitis fuscipes* Rainbow, 1914 is based on a single female and cannot therefore be unequivocally placed with one of the eleven species in the Sydney Region (Wishart, 2006). Identity uncertain.

♀ *Dyarcoops ionthus* Rainbow & Pulleine, 1918 is based on a single female and cannot therefore be unequivocally placed with one of the eleven species in the Sydney Region (Wishart, 2006). Identity uncertain.

♀ *Arbanitis chisholmi* Hickman, 1933. Morphology based on a single female, taken some distance from the known distribution of *M. rapax*, with which it was synonymized by Main (1985a,b) without explanation. Identity uncertain.

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